

# Chrysler

SIX CYLINDER  
**INDUSTRIAL  
ENGINES**



*"Horsepower with  
a pedigree"*

## *Models*

| IND.     | IND.      |
|----------|-----------|
| <b>5</b> | <b>5A</b> |
| <b>6</b> | <b>6A</b> |
| <b>7</b> | <b>7A</b> |
| <b>8</b> | <b>8A</b> |

**MAINTENANCE *and* PARTS MANUAL**

D-12154 - Second Edition

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# **MAINTENANCE AND PARTS MANUAL**

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**FOR 6-CYLINDER  
CHRYSLER INDUSTRIAL ENGINES  
MODEL IND. 5, 5A, 6, 6A, 7, 7A, 8  
AND 8A SERIES  
POWER UNITS, ENGINE ASSEMBLIES  
AND BASE ENGINES**

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Extra copies of this Manual are available at \$1.00 each under Part Number D-12154, Second Edition. Order direct from the Industrial Engine Division.

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**CHRYSLER CORPORATION—INDUSTRIAL ENGINE DIVISION**

12200 East Jefferson Avenue

**Detroit 31, Michigan, U. S. A.**

Chrysler Corporation reserves the right to make changes in design or to make additions to or improvements in its product without imposing any obligation upon itself to install them on its products previously manufactured.

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## INTRODUCTION

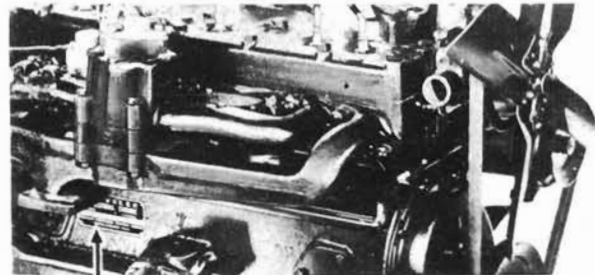
### 1. GENERAL INFORMATION.

a. **Arrangement of Manual.** Part One contains general details of construction, operation, lubrication and maintenance recommendations and a table of specifications and tolerances for the base engine and its various modifications. Part Two contains an illustrated Parts List for the base engine.

b. **Illustrations.** The illustrations in this manual are intended to show typical construction of the various parts. In some instances the shapes or details of the parts illustrated may not represent their actual appearance, however, they will serve to show the servicing methods explained or help to identify parts performing the same function.

c. **Identification of Engine.** A plate is attached to the right (manifold) side of the engine showing the model, type and serial number. Refer to figure 1. When ordering parts for the engine, or when carrying on correspondence, be sure to mention the model, type and serial number of the engine.

d. **The care** exercised in the operation and maintenance of Chrysler Industrial Engines will extend their useful life and insure highly satisfactory and dependable service. To those responsible for the operation and maintenance of the engine, this manual contains suggestions on everyday operation and care as well as periodical lubrication and maintenance instructions.



WHEN ORDERING  
PARTS BE SURE  
TO MENTION



19x3848

Figure 1—Typical Serial Number Plate

e. **Modifications.** Slight modifications in design as dictated by field experience or desire to improve the unit, or changes of materials due to inability to procure those originally specified, may become necessary. Such changes in design will be obvious and whenever possible, parts or assemblies will be interchangeable with original design.

f. **Tools.** The service tools referred to in this manual or their equivalent, are necessary for efficient servicing of Chrysler Industrial Engines. All tools listed are available through the Miller Manufacturing Company, Detroit 4, Michigan, U.S.A.

# PART ONE

## OPERATION, LUBRICATION AND MAINTENANCE

### Section I

## GENERAL DESCRIPTION

### 2. GENERAL DESCRIPTION.

**a. Differences Between Models.** Chrysler Industrial Engines, Model IND. 5, 5A, 6, 6A, 7, 7A, 8 and 8A Series (figs. 2 and 3), are supplied in various types for use as power units for mechanical shovels, power winches, road building equipment, welding generators, farm tractors and farm implements, irrigation deep well pumps, truck tractors, air conditioning mobile units, cement mixers and many other industrial applications.

When an engine is modified for various adaptations with a particular combination of accessories, it is designated by a separate model and type number, such as Models IND. 5 or 5A-202, 6 or 6A-211, 7 or 7A-261 and 8 or 8A-114. This is done so it may be readily identified in determining the service parts requirements or when additional accessories are required for various adaptations.

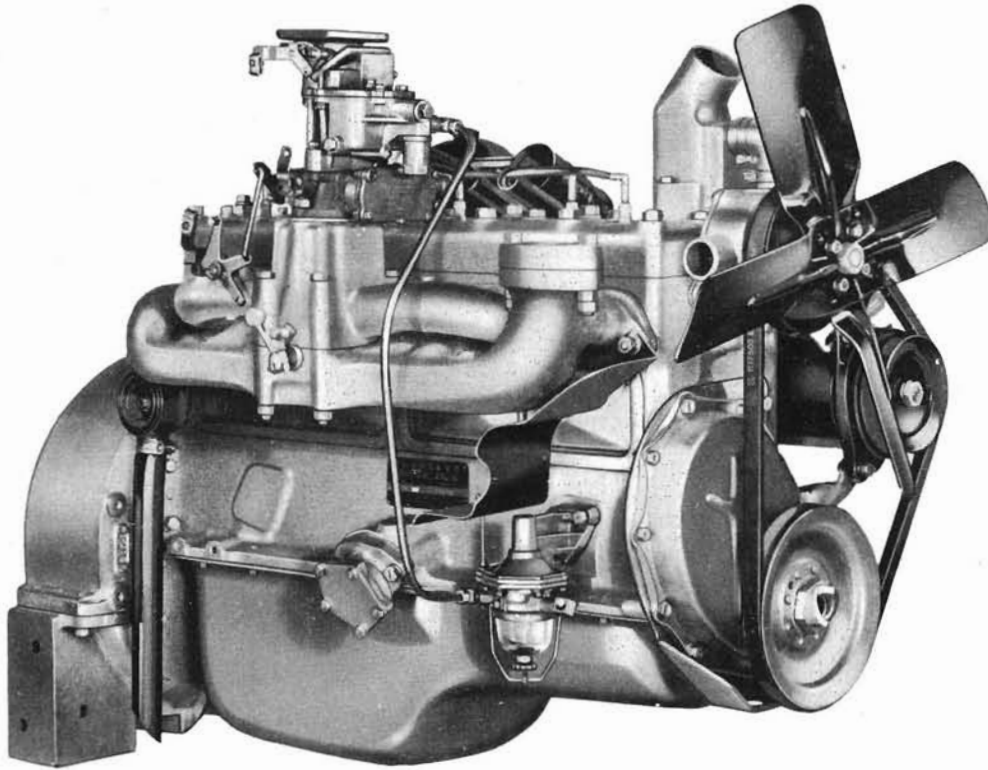
**b. Features of Construction.** The engine is a six-cylinder, four cycle, gasoline type with liquid cooling and pressure lubrication. Many moving parts are super-finished to provide the maximum in wear-resisting, load-carrying properties in the bearing surfaces. Some of the features of construction of the basic engine are:

**CYLINDER BLOCK.** The cylinder block is designed to give the greatest possible rigidity. The cylinder block is cast integral with the crankcase so as to obtain perfect alignment with the crankshaft and insure the best possible heat transfer. A water distributor tube, installed in the cylinder block directly behind the water pump, directs the circulation of water to assure uniform water temperatures.

**CRANKSHAFT.** The crankshaft is made with integral counterweights and is statically and dynamically balanced for smooth operation.

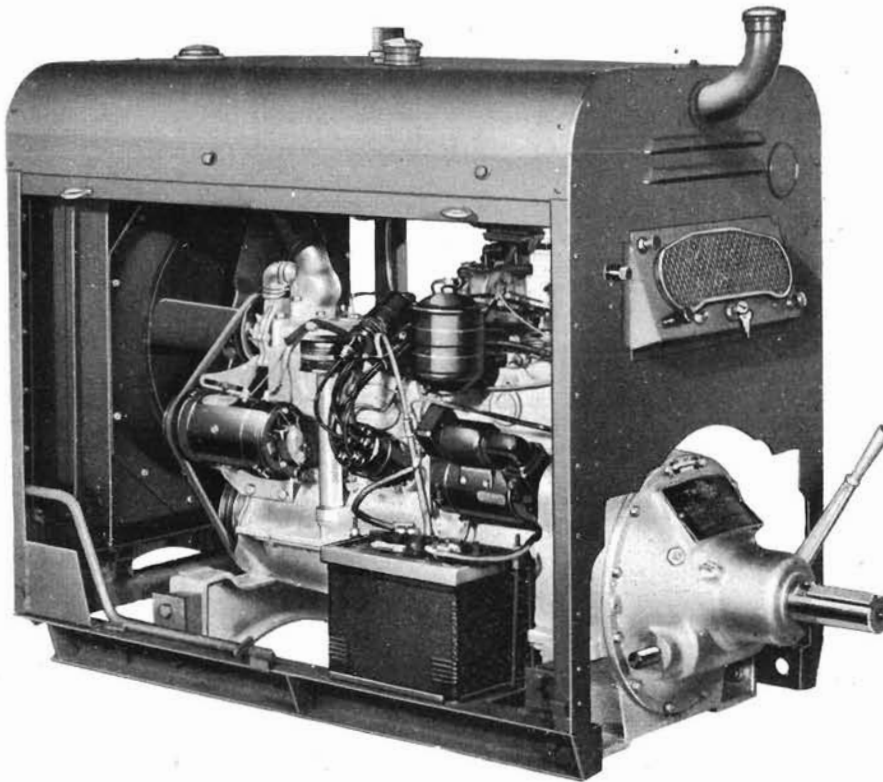
**BEARINGS.** The bearings are designed to withstand the high stresses imposed upon them during operation. Long bearing life is assured by precision manufacturing methods and the super-finished surfaces on which they operate.

**VALVES.** The exhaust valve seat inserts are hardened, assuring long life and a minimum of maintenance attention. Valve temperatures are controlled by a stream of cooled water delivered to each valve seat through the water distributor tube. For heavy duty operation, it is recommended that sodium-cooled exhaust valves be specified on new engines being ordered.



47x128

Figure 2—Chrysler Industrial Engine (Model IND. 7 or 7A-261)



47x129

Figure 3—Chrysler Industrial Engine (Model IND. 7 or 7A-264)

LUBRICATION. The engine is lubricated by oil which is picked up by a rotary-type pump from the oil pan through a floating type oil intake equipped with a screen and delivers it under pressure to the oil filter. After passing through the oil filter, it is forced through passages to the working parts of the engine. Oil temperatures

are reduced by the full length water jacket.

#### CAUTION

*Never operate the engine at an angle greater than 15 degrees because serious damage to the connecting rods, main bearings or other internal parts will result, also oil float level will be greatly affected.*

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## Section II

# OPERATION

### 3. PREPARATION OF ENGINE FOR OPERATION.

Before placing the engine in service, give particular attention to the following items:

ENGINE OIL. Check engine oil level. If necessary, add sufficient amount of recommended oil.

LUBRICATION. Make certain all points referred to in the lubrication chart, page 12, are properly lubricated.

COOLING SYSTEM. Fill the system with clean water. During freezing weather, use a sufficient amount of anti-freeze to protect the system for the lowest anticipated temperature.

BATTERY AND ELECTRICAL CONNECTIONS. Check all electrical connections, particularly the battery cables, make certain they are clean and securely tightened. Maintain the electrolyte solution in the battery at the proper level by adding pure distilled water to each cell. *Do not overfill the battery.*

CYLINDER HEAD NUTS, BOLTS AND CAP SCREWS. See that all cap screws, bolts and nuts which hold attaching parts are securely tightened. Tighten the cylinder head nuts in sequence as shown in figure 22.

### 4. PRESTARTING INSPECTIONS AND ESSENTIAL INFORMATION.

The life of an engine depends to a great extent upon careful and frequent inspections to be sure that all units are adequately lubricated and maintained. When the engine is in constant use, make the inspections listed below daily. If the engine has been idle for a period of time, make the following inspections before starting the engine.

ENGINE OIL LEVEL. Inspect the engine oil for proper level. Add oil as required.

FUEL. These engines are designed for operation on regular grades of fuel. Premium grade fuels are not required.



**LEAKS.** Inspect engine in general for evidence of fuel, oil or water leakage.

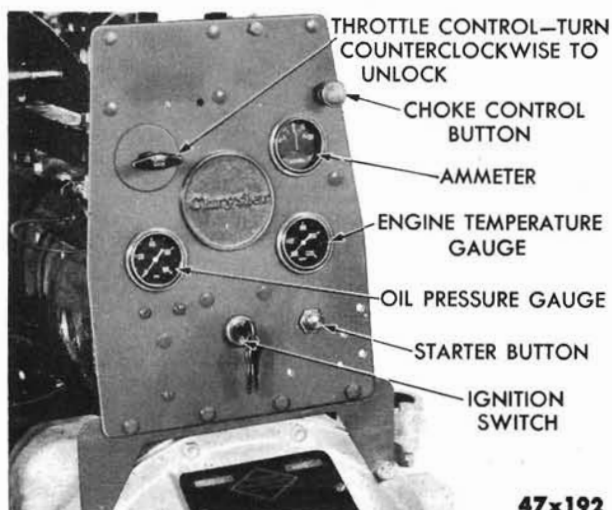
**COOLING SYSTEM.** Inspect level and add water or anti-freeze as required. Make certain all water drain cocks are closed.

## 5. STARTING AND STOPPING THE ENGINE.

### a. Starting the Engine.

(1) Set the throttle at 1/3 open and pull out choke button if not equipped with an automatic choke. Refer to figure 4 for location of throttle and choke controls.

(2) Disengage the clutch (if so equipped), turn on the ignition switch and engage the starter. The engine should start. Starter should not be engaged longer than 15-second periods at a time. If the engine does not start at the first attempt, allow 10 to 15 seconds time to elapse and then repeat.



47x192

Figure 4—Typical Instrument Panel

(3) If the engine becomes overchoked or flooded, open the throttle fully and press the starter switch. After the engine starts, close the throttle to obtain the engine speed desired and watch the oil pressure gauge. If oil pressure is not built up immediately, stop the engine and investigate the cause.

### NOTE

*The ammeter reading may show maximum charge immediately after starting the engine, depending upon the condition of the battery, but will gradually return to zero as the battery becomes fully charged.*

**b. Stopping the Engine.** Close the throttle gradually and disengage the clutch (if so equipped). Allow the engine to run at idling speed for a few minutes; then, with throttle closed, turn off the ignition.

## 6. OPERATION PRECAUTIONS.

**a. Warm-up Period.** After starting a cold engine, operate it at a speed slightly faster than idle (approximately 700 revolutions per minute) for a few minutes to allow the engine to reach normal operating temperature before placing it under full load. This will permit the oil to warm up and reach the bearing surfaces, reducing the possibility of scoring and premature wear of internal engine parts.

**b. Oil Pressure.** With the engine turning at 1800 revolutions per minute and water tempera-

ture at approximately 160° F., the oil pressure should be 40 to 55 pounds, providing there is no unusual escape of oil from some point in the system. As bearings wear and the increased clearance allows more than the normal amount of oil to escape there will be a drop in pressure shown on the gauge, particularly at idling speed.

In the event the full-flow filter should become clogged, the oil will not be filtered but will be pumped to the working parts of the engine at reduced pressure through the safety valve. When the filter is operating properly, oil pressure indicated on the instrument panel oil pressure gauge should be 40 to 55 pounds above 1800 RPM. If this pressure drops below 40 pounds, the filter element may be plugged and should be changed.

**c. Water Temperature.** A thermostat is located in the cylinder head outlet elbow to retard the circulation of water in the radiator until the water has reached a predetermined temperature, as indicated on the temperature gauge (if so equipped) thereby permitting faster warm-up of the engine. When operating in hot climates, the maximum reading shown on the gauge should not exceed 100° F. above the prevailing atmospheric temperature.

#### CAUTION

*Do not operate the engine with the thermostat removed, as this unit is essential for proper circulation and efficient engine performance.*

**d. Ignition System.** Keep the units of the ignition system clean and properly adjusted. Never use paint or lacquer on ignition wires as this may crack wires and cause a short circuit.

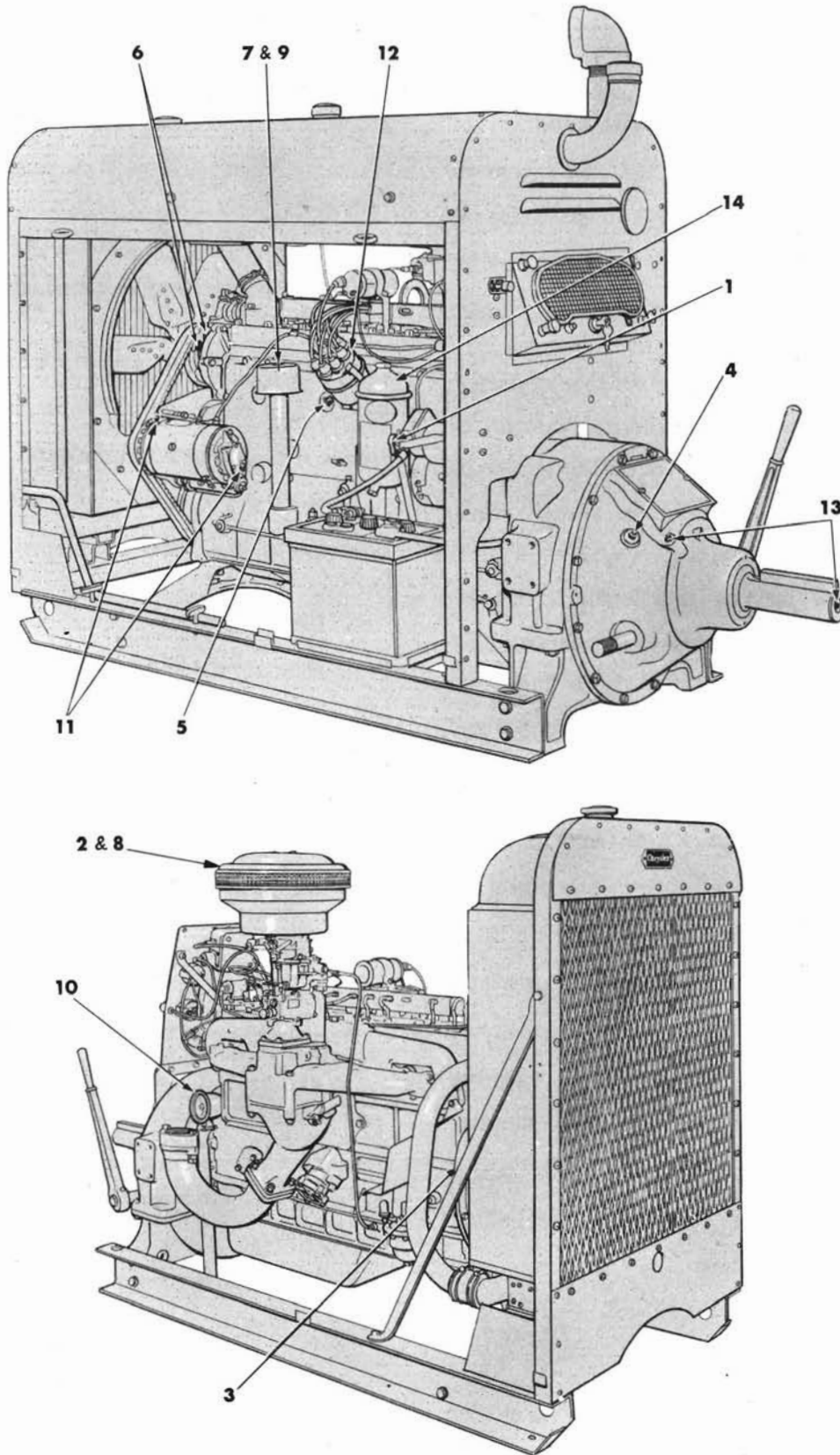
**e. Fuel System.** Keep the fuel tank, fuel lines and filters clean. Use clean fuel of proper grade.

**f. Cooling System.** Do not fill the cooling system when the engine is overheated. Allow the engine to cool before adding water or anti-freeze to prevent cracking the cylinder block. Use a good grade of anti-freeze during cold weather.

**g. Breaking in a New or Rebuilt Engine.** For peak performance and economical operation, the following adjustments should be made on a new or rebuilt engine after one hour of operation.

- (1) With the engine hot, tighten cylinder head to the specified torque which is 65 to 70 foot pounds.
- (2) Adjust valve tappets.
- (3) Adjust ignition timing if necessary.
- (4) Lubricate water pump.
- (5) Oil governor and set to proper speed (RPM).
- (6) Inspect for fuel, oil or water leaks.
- (7) Adjust idle mixture and idle speed.

CHRYSLER INDUSTRIAL ENGINES  
MODEL IND. 5, 5A, 6, 6A, 7, 7A, 8 AND 8A SERIES



47x188

Figure 5—Typical Engine Lubrication Diagram

## Section III LUBRICATION SERVICE

### 7. ENGINE OIL.

a. **Oil Recommendations.** It is important to use an oil of the highest quality and of the proper viscosity to insure adequate lubrication of moving parts.

If it is anticipated that the atmospheric temperature will be:

Not lower than +32° F.....Use SAE 30  
As low as +10° F.....Use No. 20-W  
As low as -10° F.....Use No. 10-W  
Below -10° F.....Use No. 5-W

The interpretation of the Engine Oil Recommendation table means that SAE 30 is recommended as a general summer oil. It may also be used in tropical climates during the winter months.

No. 20-W may be used in localities where only very mild winter conditions are encountered such as not lower than 10 degrees above zero.

No. 10-W is recommended as a general winter oil for temperatures as low as 10 degrees below zero, but not lower. For sub-normal winter conditions such as temperatures below -10 degree, use No. 5-W. If No. 5-W is not available, refer to paragraph "b", below.

b. **Dilution of Engine Oil.** If the engine is to be operated in temperatures consistently below -10° F., and No. 5-W oil is not available, the engine oil should be diluted to keep it sufficiently fluid for proper lubrication and easy starting. Dilute the engine oil with gasoline as follows:

(1) Fill engine to "FULL" mark on oil indicator with No. 10-W Engine Oil. Add 1 pint of gasoline and run the engine approximately 5 minutes to mix oil and gasoline thoroughly.

(2) Stop engine and scribe oil level indicator with a mark indicating dilution level above the normal "FULL" mark for future reference.

(3) The presence of gasoline in the engine oil will increase oil consumption, therefore, the oil level should be checked frequently. Use No. 10-W Engine Oil to maintain the oil level to "FULL" mark on oil level indicator during operation.

(4) If the engine is operated 4 hours or more at operating temperatures, redilution will be necessary if it is anticipated that the engine will be left standing unprotected for 5 hours or more. Redilute engine oil by adding No. 10-W Engine Oil to the "FULL" mark; then, add gasoline to the dilution mark on the level indicator as described in step (2).

c. **When to Change Oil.** The frequency of oil change depends upon the type and severity of the operation. A comparison of the oil in the engine with fresh oil will generally serve as a guide. The lack of body, the presence of dirt or grit or excessive darkening of the oil is an indication that fresh oil is needed.

Drain oil when the engine is hot, as the oil will drain more completely and carry more of the harmful foreign material and dirt with it.

## GENERAL LUBRICATION

(Refer to fig. 5 for location of units identified by the Key Numbers)

| Key No.               | Name of Unit                                  | Capacity   | How Lubricated   | Type of Lubricant  | When Required  |
|-----------------------|---|--|--|--|--|
| <b>DAILY</b>          |   |  |  |  |  |
| 1                     | Oil Level Indicator                           | ---  | -----  | -----  | Check oil level daily.   |
| 2                     | Carburetor Air Cleaner                        | ---  | -----  | -----  | Check oil daily if engine is operated under extremely dusty conditions. If the sump is found to contain a semi-solid mixture of oil and dirt up to the shelf, the air cleaner should be serviced as outlined in Key 8 below. |
| 3                     | Governor (Pierce)                             | ---  | Unscrew oil level plug and put oil in oil cup until it starts to run out of oil level plug hole. Install oil level plug.   | Engine Oil<br>SAE 10                                       | Check oil level daily.   |
| ---                   | Governor Linkage                              | Few drops  | Oil Can  | Engine Oil   | Daily  |
| 4                     | Power Take-Off                                | ---  | Front fitting on side of housing   | General Purpose Grease                                     | Daily  |
| <b>EVERY 25 HOURS</b> |   |  |  |  |  |
| 5                     | Distributor Bearing                           | ---  | Fill grease cup on side of distributor and turn down one turn.   | General Purpose Grease                                     | Every 25 hours.  |
| 6                     | Water Pump                                    | ---  | 2 fittings or 2 cups   | Water Pump Grease only                                     | Every 25 hours.  |
| <b>EVERY 50 HOURS</b> |   |  |  |  |  |
| 7                     | Engine (Oil Pan)                              | 5 qts.<br><br>6 qts. if filter is being replaced | Remove plug in bottom of oil pan to drain oil. Install plug. Add oil through filler pipe to bring to proper level.   | Refer to paragraph 7, page 11.                             | Every 50 hours. Replace oil if engine is idle 30 days or longer.   |
| 8                     | Carburetor Air Cleaner                        | 1 pint   | Remove cover and filter element, rinse element clean in kerosene and drain. Empty dirty oil from reservoir, clean out the sump and refill to indicated level with fresh oil. | Engine Oil<br>SAE 50 above +32°F.<br>No. 20 W below +32°F. | Every 50 hours. Clean more often if engine is operated under extremely dusty conditions. If SAE 50 oil is not available, SAE 40 oil may be used.   |
| 9                     | Oil Filler Pipe Air Cleaner                   | ---  | Remove filler pipe cap, wash filter element in kerosene, dry thoroughly and dip in fresh oil.  | Engine Oil<br>SAE 50                                       | Every 50 hours. Clean more often if engine is operated under extremely dusty conditions. If SAE 50 oil is not available, SAE 40 oil may be used.   |
| 10                    | Crankcase Ventilation Outlet Pipe Air Cleaner | ---  | Remove filter element and wash element in kerosene. Re-oil with fresh oil.   | Engine Oil<br>SAE 50                                       | Every 50 hours. Clean more often if engine is operated under extremely dusty conditions. If SAE 50 oil is not available, SAE 40 oil may be used.   |

**CHRYSLER INDUSTRIAL ENGINES**  
**MODEL IND. 5, 5A, 6, 6A, 7, 7A, 8 AND 8A SERIES**

| Key No.                            | Name of Unit                                  | Capacity                       | How Lubricated   | Type of Lubricant  | When Required  |
|------------------------------------|---|--------------------------------|--|--|--|
| <b>EVERY 50 HOURS (Continued)</b>  |   |                                |  |  |  |
| 11                                 | Generator                                     | 5 or 10 drops                  | Oil cup at front bearing and covered oil hole at rear bearing.   | Engine Oil SAE 10  | Every 50 hours. After oil is applied, be sure the oil cup and hole covers are closed.  |
| 12                                 | Distributor Wick                              | 2 or 3 drops                   | Remove distributor cap and rotor and oil wick in center of cam.  | Engine Oil SAE 10  | Every 50 hours.  |
| 13                                 | Power Take-Off                                | ---                            | Rear fitting on side of housing and fitting on end of shaft.   | General Purpose Grease   | Every 50 hours.  |
| ---                                | Clutch Linkage                                | ---                            | Oil can  | Engine Oil   | Every 50 hours.  |
| ---                                | Transmission                                  | ---                            | -----  | -----  | Check oil level every 50 hours. Replace oil every 800 hours or 6 months as outlined in the last item of this table.  |
| <b>EVERY 100 HOURS</b>             |   |                                |  |  |  |
| 14                                 | Oil Filter (Full-Flow Type)                   | ---                            | Remove cover, gasket and element. Wipe clean inside of filter casing and install new MOPAR filter element and gasket. Install cover. Then, idle engine for about five minutes and correct oil level in engine oil pan to compensate for oil absorbed by the filter.  |  | Every 100 hours. Service filter more often if engine is operated under extremely dusty conditions.   |
| <b>EVERY 200 HOURS</b>             |   |                                |  |  |  |
| 14                                 | Oil Filter (By-Pass Type)                     | ---                            | Replace the filter element after each 200 hours of operation, or as often as necessary to keep the oil clean.  |  | More often under extreme conditions.   |
| <b>EVERY 300 HOURS</b>             |   |                                |  |  |  |
| --                                 | Fluid Drive                                   | 13 pints                       | Allow unit to cool to atmospheric temperature to allow maximum contraction. Then, rotate fluid drive until filler plug is opposite the filler hole in the clutch housing. Add fluid if necessary to bring level to bottom of filler hole in the fluid drive unit.<br>This applies to Chrysler Manufactured housings. Should other type housing be used, the fluid drive filler plug should be at a 56 degree angle from top dead center. | MOPAR Fluid Drive Fluid  | Inspect every 300 hours. NOTE: Inspect the level of the fluid in a new engine after the first 25 hours of operation and if necessary refill to the proper level. |
| <b>EVERY 800 HOURS OR 6 MONTHS</b> |   |                                |  |  |  |
| --                                 | Transmission<br>3-Speed<br>4-Speed<br>5-Speed | 3½ pts.<br>6 pints<br>11 pints | Remove drain plug in bottom of case to drain lubricant. Install plug. Fill transmission to bottom of filler plug hole at side of case.   | Fluid Gear Lubricant<br>SAE 90 above—10°F.<br>SAE 80 below—10°F. | Every 800 hours or 6 months. If SAE 80 lubricant is not available, SAE 90 lubricant blended with 20% of No. 10-W Engine Oil may be used.                         |

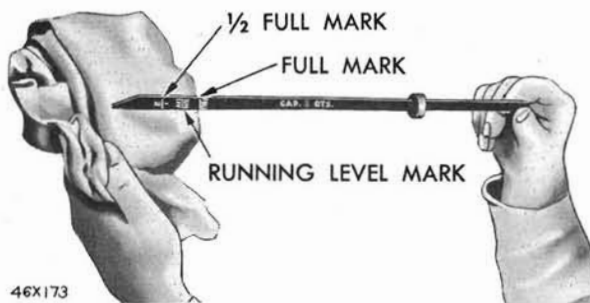
Oil changes should be made after each 100 hours of normal warm weather. When operating intermittently for short periods or during cold weather or under dusty conditions, the oil should be changed more frequently. The oil capacity of the engine is 5 quarts.

**b. Cold Weather Operation.** During cold weather, the oil used should have a cold test below the lowest anticipated temperatures that will be encountered during its use. If the operation of the engine is such that it does not reach normal operating temperatures, moisture in the crankcase will condense and form a sludge which may freeze, or clog the oil inlet strainer, resulting in lack of lubrication.

Under such operating conditions, the oil should be examined daily and changed if there is evidence of sludge or water. If excessive sludge accumulation is evident, the oil pan should be removed and all accessible parts, including inlet strainer, should be scraped and cleaned as thoroughly as possible. Use new gaskets when installing the oil pan.

**e. Checking and Adding Oil.** The oil level indicator is of the bayonet type. Some indicators have three markings ("FULL", "RUN LEV" AND "1/2"), while others have only two marks ("FULL" and "ADD OIL").

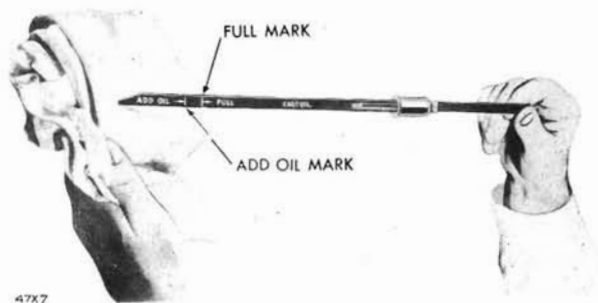
**OIL LEVEL INDICATOR WITH THREE MARKS** (fig. 6). Check the oil daily before starting the engine. Before a cold engine is started, the oil level should not be lower than the running level ("RUN LEV") mark. After the engine has been started, the oil level will drop due



**Figure 6—Oil Level Indicator (With Three Marks)**

to the filling of the oil passages and filter. Under no circumstances should the oil level be allowed to drop below the "1/2" mark on the indicator. When checking the oil in a hot engine, do not add oil unless the level is below the running level mark. Excessive oil in the engine serves no useful purpose and is generally wasted.

**OIL LEVEL INDICATOR WITH TWO MARKS** (fig. 7). The "FULL" mark shows the proper level of oil after the engine has been standing for a few hours. As soon as the engine has started running, the level will drop somewhat, due to the filling of oil passages and the filter. A quart of oil should be added when the level is at or just above the "ADD OIL" mark on the indicator. The level should never be allowed to drop below the "ADD OIL" mark.



**Figure 7—Oil Level Indicator (With Two Marks)**

## 8. OIL FILTER (BY-PASS FILTERING SYSTEM).

a. **Description** (fig. 8). When the oil passes through the by-pass type filter, the foreign substances are trapped in the filter element, thus helping to keep the oil clean. This process is continuous and the element will continue to trap dirt until it becomes clogged. When the element is clogged, it ceases to filter the oil and it should be replaced.

b. **Oil Filter Element.** Replace the filter element after each 200 hours of operation, or as often as necessary to keep the oil clean.

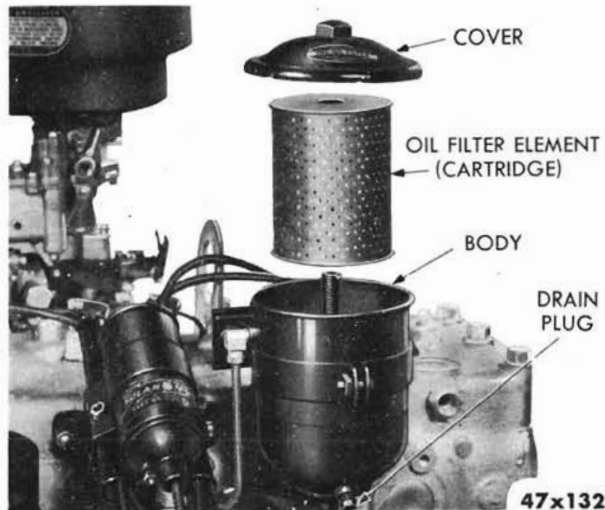


Figure 8—By-Pass Oil Filter

## 9. OIL FILTER (FULL-FLOW FILTERING SYSTEM).

a. **Description.** Some engines are equipped with a "Full-Flow" type oil filter (fig. 9). "Full-Flow" means that all of the oil delivered from the oil pump flows through the oil filter under pressure. This assures a constant flow of clean filtered oil to the working parts of the engine. The filter is so constructed and installed that it is impossible for the supply of oil to be cut off even though the filter becomes clogged.

If the filter becomes clogged, the oil will not be filtered but will be pumped to the working parts of the engine at reduced pressure through the safety by-pass valve in the top of the filter body. When the filter is operating properly, oil pressure indicated on the oil pressure gauge should be 50 to 60 pounds at operating speeds. If this pressure drops to 35 to 45 pounds, the filter element may be plugged and should be changed.

b. **Oil Filter Element.** The filter element is of the economical, replaceable type. The filter element and cover gasket should be replaced every 100 hours of engine operation. Replace the ele-

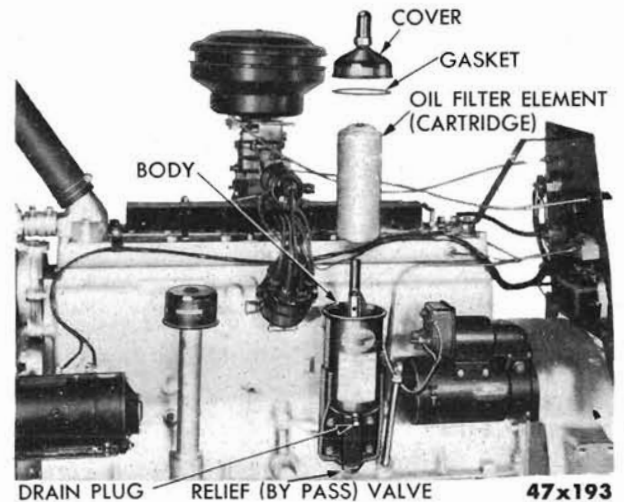


Figure 9—Full-Flow Oil Filter

ment, with a genuine MOPAR filter element and cover gasket, which are available through the Chrysler Motors Parts Corporation Parts Plants and Depots.

## 10. CRANKCASE VENTILATION.

a. **Description.** Air for crankcase ventilation enters the oil filler pipe cap (fig. 10) and is expelled through the ventilator outlet pipe (fig. 11) attached to the right side of the engine. The oil filler cap and the outlet pipe both contain filter elements, which may be removed and cleaned.



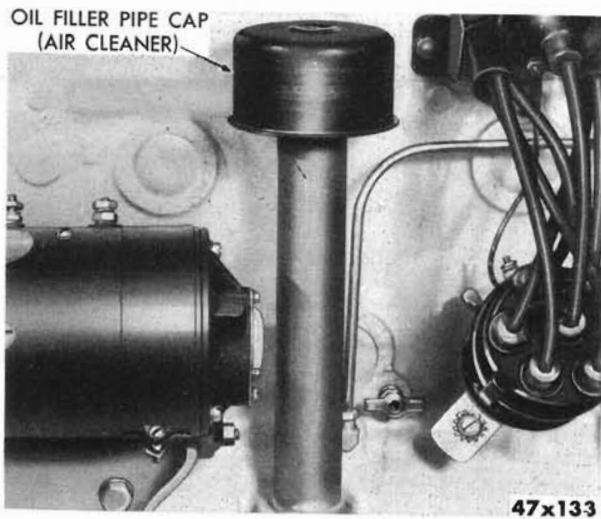


Figure 10—Oil Filler Cap Air Cleaner

**b. Servicing Air Cleaner Element.** The air cleaner elements should be cleaned whenever the engine oil is changed (every 50 hours), or as often as once a day under extremely dusty operation. Install the oil filler pipe cap with the vent hole toward front of engine if the engine is equipped with “suction” type fan, or toward rear of engine if the engine is equipped with “pusher” type fan.

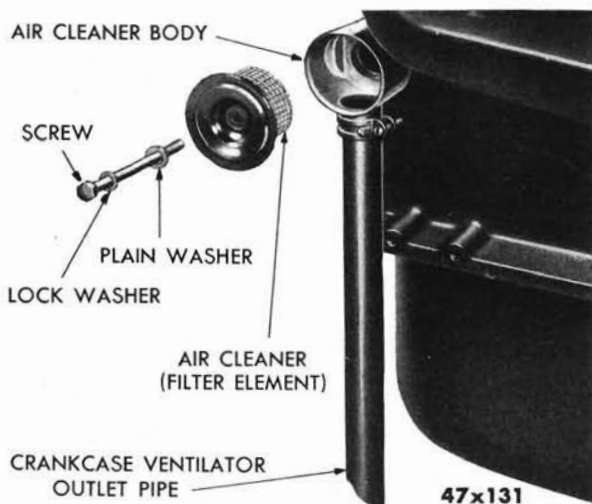


Figure 11—Crankcase Ventilator Outlet Pipe Air Cleaner

## 11. ENGINE ACCESSORIES

**a. General.** To prolong the life of the various engine accessory units, lubricate them at the specified intervals with the proper type of lubricant. Clean fittings or oil cups before applying lubricant and record the number of hours of engine operation between lubrications.

### b. Carburetor Air Cleaner.

**DESCRIPTION.** Two types of heavy duty oil bath air cleaners are shown in figures 12 and 13. All air is drawn through the air cleaner before it reaches the carburetor. Most of the dust is trapped in an oil reservoir and the remaining dust is removed by passing the air through an oil washed filter element. Keeping the dust and grit from the interior of the engine is important.

**SERVICING AIR CLEANER.** Normally, the carburetor air cleaner should be serviced whenever the engine oil is changed (every 50 hours). Under extremely dusty conditions, however, the air cleaner should be examined daily. If the sump is found to contain a semi-solid mixture of oil and dirt up to the shelf, the air cleaner should be thoroughly cleaned. Remove cover and filter element, rinse element clean in kerosene and drain. Empty the dirty oil from reservoir, clean out the sump and refill to indicated level with new SAE

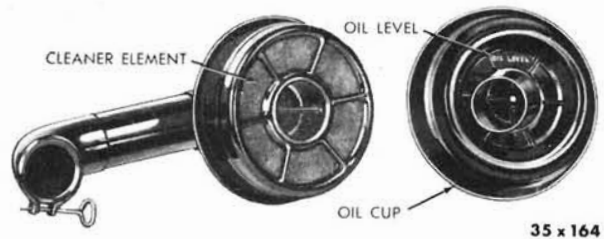


Figure 12—Carburetor Air Cleaner (Inverted Type)

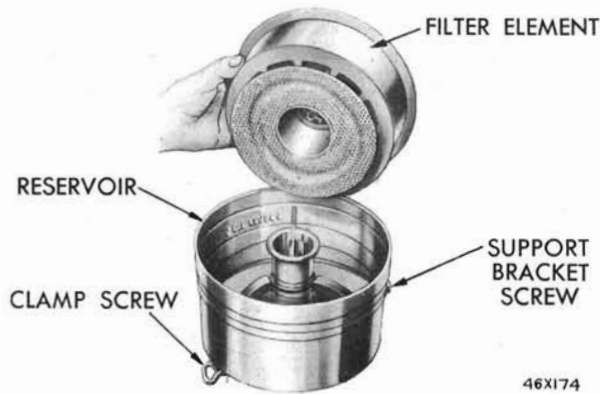


Figure 13—Carburetor Air Cleaner (Hat Type)

50 Engine Oil for temperatures above +32° F. or No. 20-W Engine Oil below +32° F. If SAE 50 oil is not available, SAE 40 Engine Oil may be used. Install air cleaner, making sure gasket is in place on carburetor flange.

**CAUTION**

*If engine is operated in or near excavations, or earth handling in any form, near blast furnaces, steel mills or foundries, service all air cleaners every 8 hours. Air cleaner hoses and carburetor air horn connections must be tight to prevent dirt from entering.*

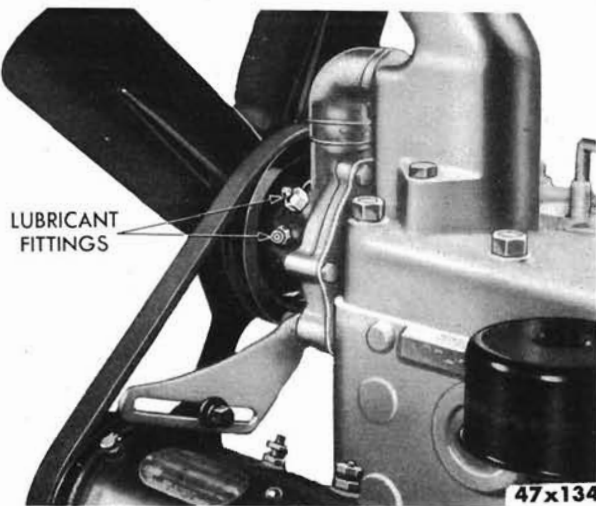


Figure 14—Water Pump Lubrication (Ball Bearing Type)

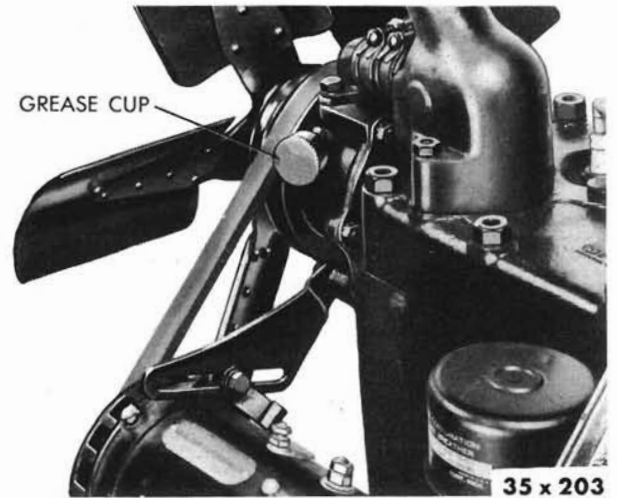


Figure 15—Water Pump Lubrication (Bushing Type)

c. **Water Pump.** The water pump of the type shown in figure 14, has two lubricant fittings. Lubricate every 25 hours of operation with Water Pump Grease only. The water pump, shown in figure 15, is equipped with one fitting or a grease cup. When a fitting is provided, lubricate the pump as explained above for pumps with two fittings. When a grease cup is used, fill the cup with Water Pump Grease and turn the cup one complete turn every 25 hours of operation.

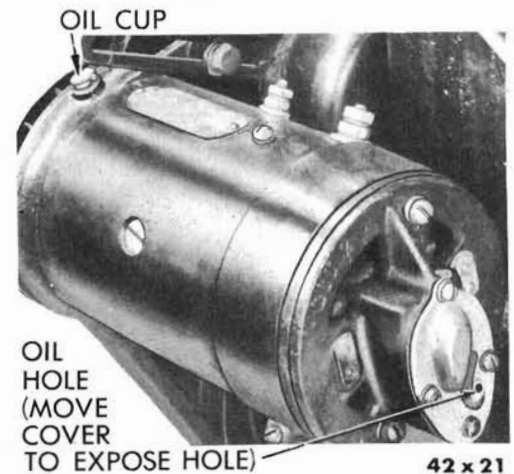


Figure 16—Generator Lubrication

**d. Generator** (fig. 16). The generator has two lubrication points: an oil cup at the front bearing and a covered oil hole at the rear bearing. Lubricate each with a few drops of SAE 10 Engine Oil after each 50 hours of operation.

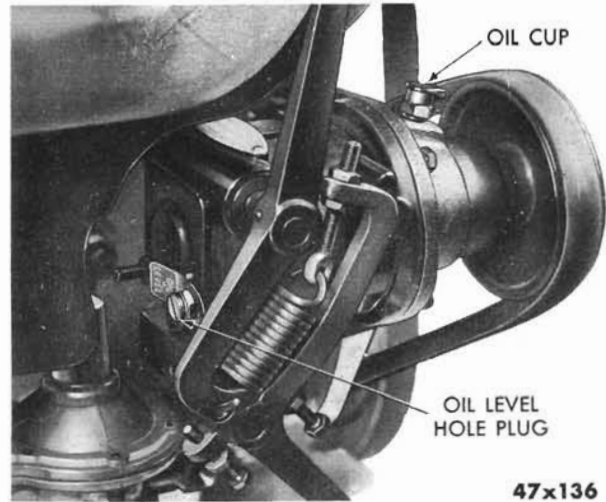
**e. Starter.** The starter is lubricated at the time of assembly and requires no further lubrication.

**f. Distributor** (fig. 17). The distributor has two lubrication points: an oil cup on the side of the distributor and a wick under the rotor in the center of the cam. Apply a few drops of SAE 10 Engine Oil to the oil cup and add two or three drops of oil to the wick each 50 hours of operation.

**CAUTION**

*Do not allow oil or grease to get on the distributor points as this will cause burning of the points.*

**g. Governor.** Some engines are equipped with a governor of the type shown in figure 18. Check the governor daily for proper lubrication and lubricate if necessary with SAE 10 Engine Oil. To lubricate the governor, unscrew the oil level plug and put oil in the oil cup until it starts to

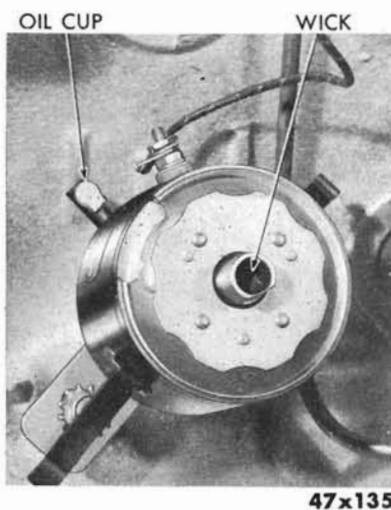


**Figure 18—Mechanical Governor Lubrication**

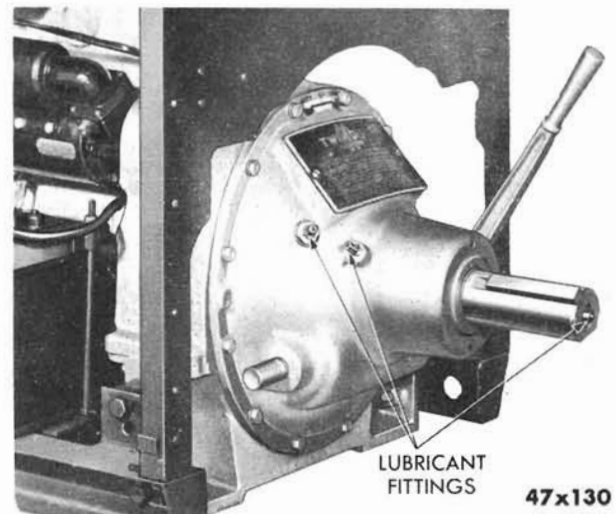
run out of the oil level plug hole. Then, reinstall the oil level plug.

**h. Power Take-Off.** Some engines are equipped with a power take-off of the type shown in figure 19. If equipped with this type power take-off, lubricate the front fitting once a day with the General Purpose Grease. Apply lubricant to the rear fitting and also to the fitting in the end of the shaft every 50 hours of operation.

**i. Clutch Linkage.** If the engine is equipped with a clutch, lubricate clutch operating linkage with engine oil every 50 hours of operation.



**Figure 17—Distributor Lubrication**



**Figure 19—Power Take-Off Lubrication**

## Section IV

# MAINTENANCE, TESTS AND ADJUSTMENTS

### 12. TROUBLE DIAGNOSIS.

Engine operation depends upon two main factors. Fuel and air must enter the cylinders in the proper mixture and adequate spark must reach the spark plugs at the proper time. If your engine stops or fails to start, check the following causes:

#### a. Fuel Does Not Reach the Carburetor.

Empty fuel tank.

Close vent in fuel tank filler cap.

Air leaks in fuel line.

Inoperative fuel pump.

#### b. No Spark Being Delivered to the Spark Plugs.

Loose or corroded battery terminals.

Moisture or oil on distributor cap or spark plugs.

Broken or loose wire in low tension circuit.

Burned or dirty distributor points.

Shorted condenser.

Faulty ignition coil.

Secondary cable not indexed in coil or distributor tower.

Cracked distributor cap or rotor.

### 13. ENGINE TUNE-UP.

**a. General.** To maintain the high standard of efficiency originally built into the engine, units of the ignition and fuel systems should be checked periodically and kept in proper adjustment.

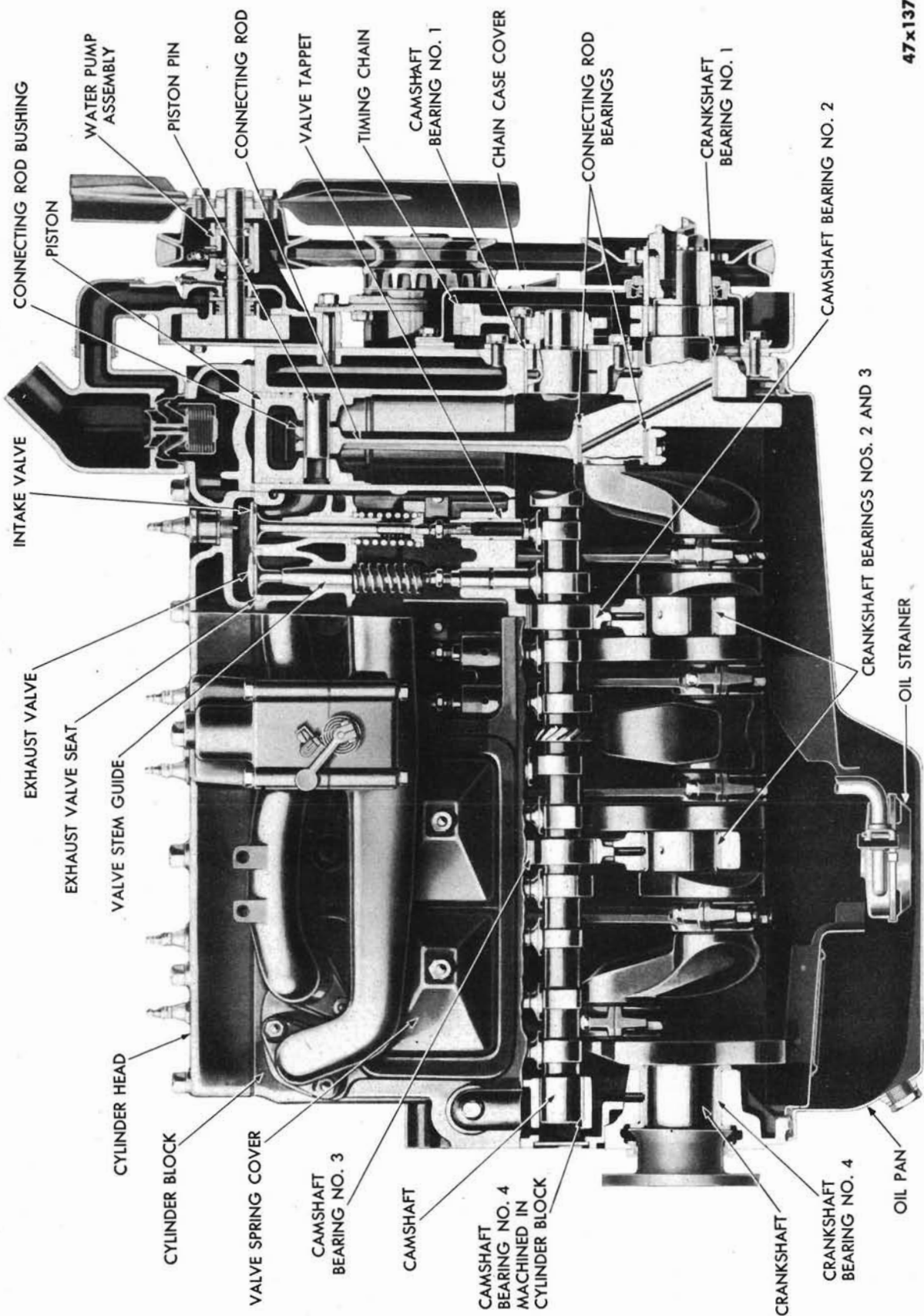
**b. Ignition System.** Test the battery voltage and state of charge; clean and tighten the terminal

connections. Check the ignition wires for corroded or loose connections. Clean the distributor cap and terminals and inspect the cap for cracks or corrosion. Inspect the distributor rotor for cracks or damage; a slight burning at the end of the metal strip is normal; if the top of the strip is burned, install a new rotor. Dress the distributor breaker points, or if excessively burned or pitted, install new points and adjust the gap to .018 to .020 inch. Clean the spark plug electrodes and porcelains and adjust the gap on standard type plugs to .025 to .028 inch; on resistor type plugs .035 inch. Check the ignition timing.

**c. Fuel System.** Test the vacuum (fig. 21). Run the engine at idling speed at normal operating temperature; gauge should show 18 to 21 inches of vacuum at sea level with the gauge hand steady. Lower vacuum readings or unsteady gauge hand indicates improper carburetor adjustment, improper ignition timing, burned, riding or sticky valves, weak valve springs, leaky intake manifold or carburetor gaskets or poor piston ring seal. Clean the fuel pump sediment bowl and screen. Adjust the carburetor.

**d. Cooling System.** Adjust the fan belt. See that air circulation through the radiator and around the engine is not obstructed and that room or engine compartment temperatures are not abnormal.

**e. Lubrication.** See that all points of lubrication are adequately lubricated.



47x137

Figure 20—Side Sectional View of Engine

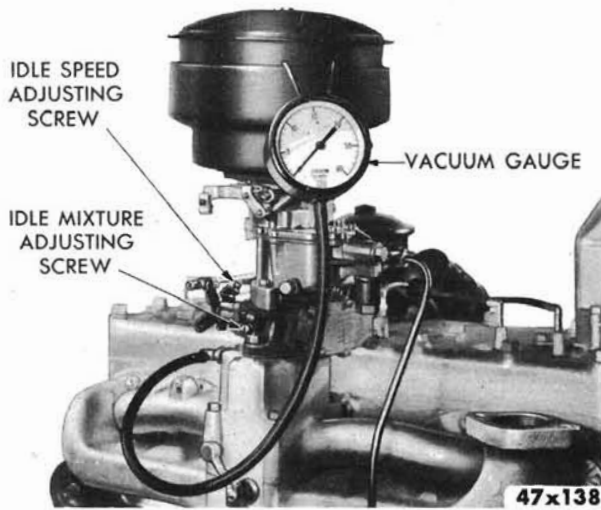


Figure 21—Vacuum Test Connections

**f. Valve Tappets.** Check the valve tappet adjustment and if necessary, set the tappet clearance to proper specifications.

**g. Compression Test.** In making a compression test, start the engine and let it warm up to normal operating temperature. Remove all spark plugs and install a compression gauge in one of the spark plug holes. Also close the shut-off valve, if provided, in the gasoline line. Then open the throttle wide and crank the engine with the starter. Four or five revolutions of the engine will give a normal pressure reading on the gauge.

If the reading is reasonably high and uniform, not varying more than 10 pounds between cylinders, compression pressure may be considered normal. If compression test shows an abnormal condition, it may be advisable to make an internal inspection of the valves, pistons, rings, etc. An extremely low reading in two adjacent cylinders might indicate a blownout cylinder head gasket between the two cylinders.

## 14. CYLINDER BLOCK AND CYLINDER HEAD.

**a. Cylinder Block.** The cylinder block (fig. 20) is of the "L" head type with detachable cylinder head. The block and the upper part of the crankcase are cast en bloc.

### b. Cylinder Head.

**REMOVING AND INSTALLING THE CYLINDER HEAD.** The cylinder head can be removed after disconnecting the parts attached to the head and removing the cap screws and stud nuts.

When installing a cylinder head, always use a new gasket. Make sure the cylinder head and cylinder block are free from carbon and dirt. Tighten the cylinder head cap screws in sequence, as shown in figure 22, by drawing all cap screws and nuts down evenly. Repeat this operation until all screws and nuts are tight. Use a torque wrench and tighten cap screws to 65 to 70 foot pounds and stud nuts to 52 to 57 foot pounds.

A final tightening and checking of tension should be made after the engine has been run and is still warm.

**TESTING CYLINDER HEAD GASKET FOR LEAKS.** An engine cylinder head gasket leak is not always evident outside the engine and a mere tightening of the cylinder head cap screws or nuts may not stop such a leak if it actually exists.

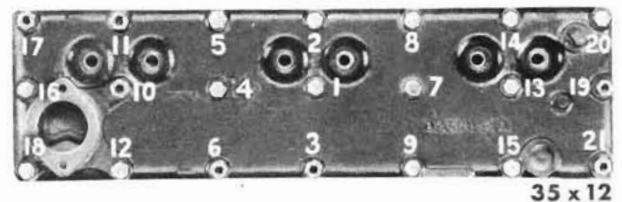


Figure 22—Cylinder Head Tightening Sequence

To Make Certain Whether There Is Any Leakage:

- (1) Drain cooling system (radiator and cylinder block).
- (2) Remove cylinder water outlet elbow and thermostat.
- (3) Close drain cock on side of cylinder block.
- (4) Loosen fan belt so water pump will not operate.
- (5) Refill cylinder block with cold water until water level in cylinder head is flush with top of opening, where outlet elbow and thermostat were removed.
- (6) Start engine and accelerate a few times, but do not run engine for more than 60 seconds—a longer period will heat the water, expand it and nullify test.

If air bubbles continue to come up through the water at the elbow opening, there is in all probability a slight leakage at the cylinder head gasket. Tighten cylinder head cap screws or nuts. If this does not stop the leakage, replace the cylinder head gasket.

If the cooling liquid overflows elbow opening when running engine 60 seconds, there is in all probability a more serious head gasket leak.

If there are no air bubbles and no overflow of cooling liquid, it can be assumed that no gasket leakage exists.

**c. Cylinder Bores.** Cylinder bores that are out-of-round more than .005 inch, tapered more than .020 inch or scored, can be reconditioned for an oversize piston. (See Part Two, Parts List.) Bore to within .001 inch of the finished size, then hone to a smooth, bright finish to insure satis-

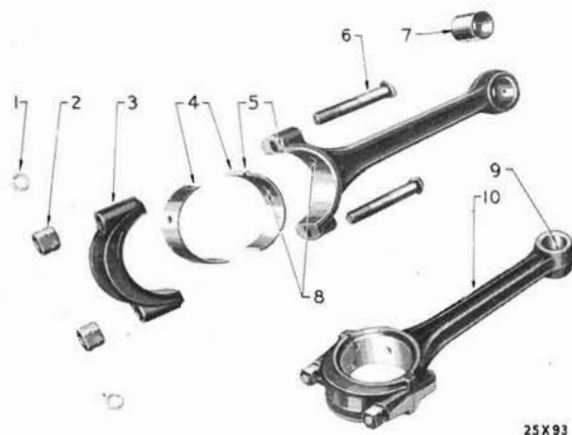
factory ring life. The final working limit for out-of-round and taper is .001 inch.

## 15. CONNECTING RODS AND BEARINGS.

**a. Description** (fig. 23). The connecting rods are drop forged into an "I" beam. The thin, babbitt-on-steel type bearings are of the removable precision type. No scraping or fitting is required when installing new bearings. The bearings are accessible for inspection or replacement with the oil pan removed.

**b. Installing Connecting Rods.** Connecting rods should always be installed with the oil metering hole in the connecting rod toward the valve side of the engine. It is advisable to check the rods for alignment with an aligning fixture as shown in figure 24 each time they are installed and especially when installing new piston pin bushings.

The connecting rods are numbered to correspond with the cylinders. Models IND. 5, 5A, 6 and 6A rods are offset, therefore they must be



25X93

**Figure 23—Exploded View of Connecting Rod**

- |                            |                 |
|----------------------------|-----------------|
| 1—Cap bolt nut lock washer | 6—Cap bolt      |
| 2—Cap bolt nut             | 7—Rod bushing   |
| 3—Cap                      | 8—Oil holes     |
| 4—Rod bearings             | 9—Oil hole      |
| 5—Tongue and groove        | 10—Rod assembly |

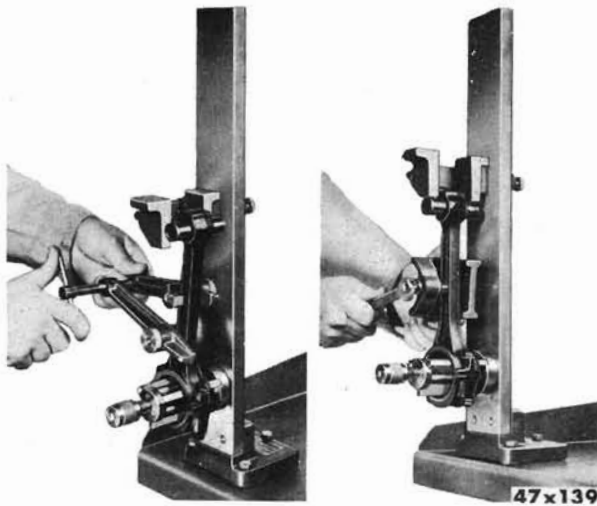


Figure 24—Aligning Connecting Rod  
Tool C-710

installed in the proper cylinder bore. When installing the assemblies, clean them thoroughly and coat the piston and rings with oil; compress the rings and install the assemblies from the top of the bore with the oil hole in the connecting rod toward the valve side of the engine. See figure 25.



Figure 25—Installing Piston and Connecting  
Rod Assembly with Tool C-385

c. **Replacing Connecting Rod Bearings.** Connecting rod bearings are easily replaced by removing the bearing caps and bearing shells. Replacement bearings require no reaming or fitting.

Connecting rod bearings should always be installed so the small formed ear on the bearing fits in the machined grooves in the connecting rods, in order to locate the bearing in place. This applies to both bearing halves. Tighten the nuts with a torque wrench to 45 to 50 foot pounds.

To check the connecting rod bearing clearance, coat a piece of .002 inch feeler stock ( $\frac{1}{2}$  inch wide and 1 inch long) with oil and place it between the bearing insert and the crank pin. Install the bearing cap and turn the nuts up tight.

If possible, rotate the crankshaft at least one full turn. If clearance is not excessive, there will be a drag or the crankshaft will be so tight it cannot be turned by hand. Without feeler stock between the bearing and crankpin, the crankshaft **MUST** be free enough to be turned by hand for a complete revolution.

If the bearing clearance is excessive, the crankshaft journals should be checked for out-of-round and taper. It is desired that out-of-round and taper should not exceed .001 inch. Use under-size bearings of correct size if there is no perceptible drag. (See Part Two, Parts List.) Check the clearance on each connecting rod bearing individually.

**CAUTION**

*Do not file bearing caps to reduce bearing clearance; always install new bearing inserts.*



## 16. PISTONS, PINS AND RINGS.

**a. Description.** The cam ground pistons are attached to the connecting rods by floating type piston pins. Each piston carries two compression rings and two oil rings, all above the piston pin. The piston and connecting rod assemblies are removed through the top of the cylinder bore with the oil pan and cylinder head removed.

### b. Fitting Pistons.

**FITTING ALUMINUM PISTONS.** Pistons should be fitted to the cylinder bores with the greatest of accuracy and care. The clearance between the high spot of the piston skirt contour (about  $\frac{3}{4}$  inch from bottom of piston) and the cylinder wall should be .0008 inch. The fitting should be done at normal room temperature (70° F.), before the piston is assembled to the rod.

This clearance can be checked by using .002 inch feeler stock,  $\frac{1}{2}$  inch wide and long enough to extend down into the bore the full length of the

piston. The piston should be completely inserted upside down in the cylinder bore. Feeler stock should be placed between the piston and cylinder wall on the high spot of the piston contour. Draw out the feeler stock with a spring scale (fig. 26). The amount of pull required to withdraw the feeler stock should be between 5 and 7 pounds.

For checking sizes of stock pistons, measurements should be made with micrometer calipers across the high points of the piston skirt contour, as shown in figure 27.

Pistons are available through the Chrysler Motor Parts Corporation, Parts Plants and Depots in standard and oversizes as listed in the Parts List.

**FITTING LIGHT WEIGHT CAST IRON PISTONS.** The most accurate and practical means of fitting light weight cast iron pistons is with a .0015 inch feeler stock,  $\frac{1}{2}$  inch wide and long enough to extend down into the bore the full length of the piston. Install the piston upside down in the bore with the feeler stock between the piston and cylinder wall on the thrust side of the piston (side at right angles to pin holes). The proper piston fit

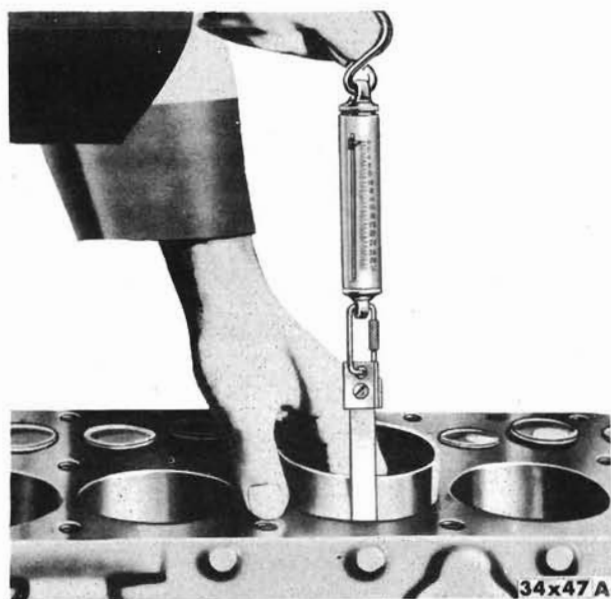


Figure 26—Fitting Piston Using Spring Scale Tool C-690



Figure 27—Measuring Piston with Micrometer Calipers

should indicate a 6 to 10 pound continuous pull, using a spring scale. To assure accuracy, it is important that a spring scale be used, rather than to depend on an individual's judgment as to what constitutes the recommended pull.

**SEMI-FINISHED PISTONS.** Pistons are available through the Chrysler Motor Parts Corporation, Parts Plants and Depots with skirts and ring lands semi-finished so, with proper equipment, they may be finished to fit any cylinder bore. These pistons are available in two sizes: for cylinder bores from standard to .023 inch oversize and for cylinder bores from .025 to .060 inch oversize.

The piston ring grooves of semi-finished pistons are completely finished so that only skirt and lands require finishing. However, do not attempt to use a .025 to .060 inch oversize semi-finished piston to make a finished piston below .025 inch oversize because ring grooves, which are finished, are of a different size than on .023 inch oversize semi-finished pistons.

**GRINDING SEMI-FINISHED PISTONS.** All finished pistons shipped from the Chrysler Motor Parts Corporation, Parts Plants and Depots are cam ground (elliptical), regardless of oversize measurements. Semi-finished pistons shipped from the Chrysler Motor Parts Corporation should be finished elliptically with proper cam grinding equipment. These pistons must not be finished circular.

The process of cam grinding a piston creates an elliptical shape. When finished, the diameter of the piston at the pin holes is less than the diameter across the thrust faces.

The piston is fitted in the cylinder bore with a

small amount of clearance on its thrust faces. Under operating temperatures, the expansion forces the pin piers away from each other, causing the pistons to assume a shape more nearly round; therefore, semi-finished pistons must be finished elliptically (cam ground) to prevent their filling the bore completely.

**c. Fitting Piston Pins.** The piston should be assembled to the rod so that the slotted side of the piston is opposite the oil hole in the connecting rod. When the piston and rod assembly is installed in the bore, the slotted side of the piston should be farthest from the valve side of the engine.

Piston pins are available in standard and oversizes as listed in the Parts List.

**CONNECTING ROD BUSHING.** The piston pin should have a "thumb push" fit in the connecting rod bushing (fig. 28), with both the piston and pin at 70° F.

**ALUMINUM PISTONS.** The piston pin should have a "thumb push" fit in the piston bosses (fig. 28), with both the piston and pin at 70° F.

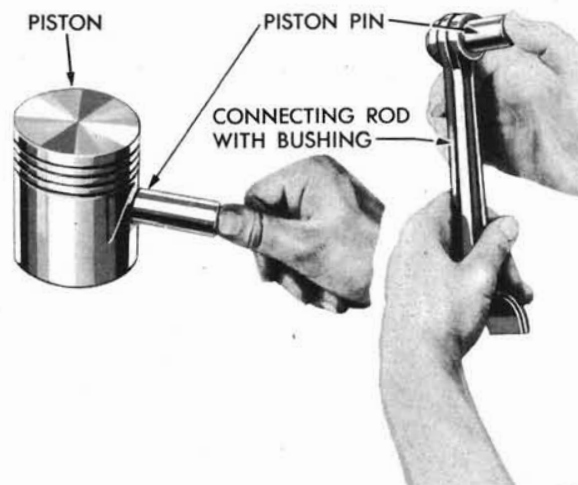
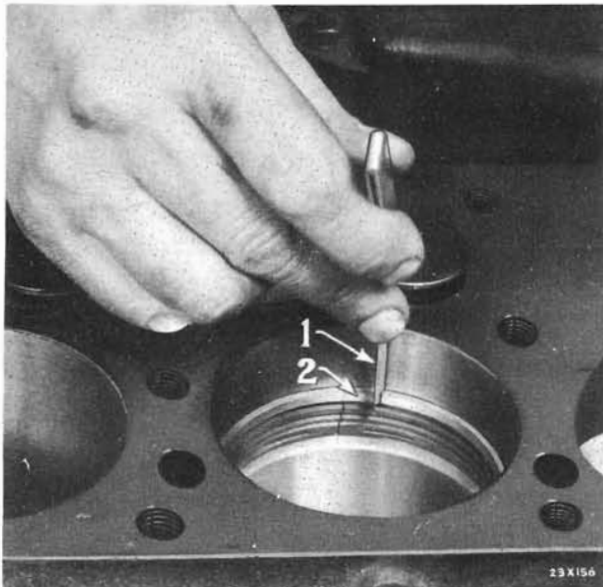


Figure 28—Fitting Piston Pin in Connecting Rod and Aluminum Piston

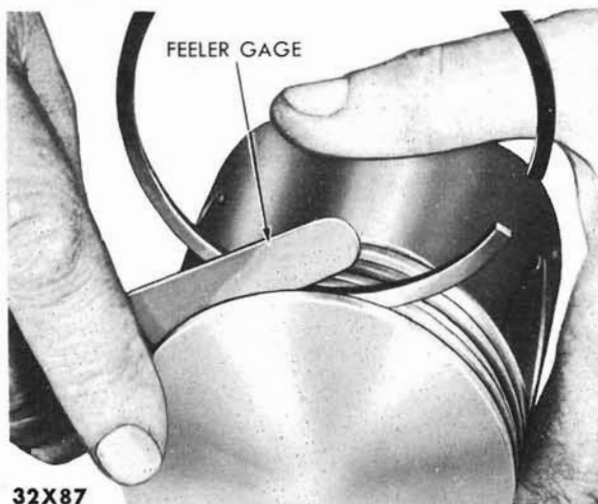


**Figure 29—Fitting Piston Rings**

1—Feeler gauge 2—Piston ring

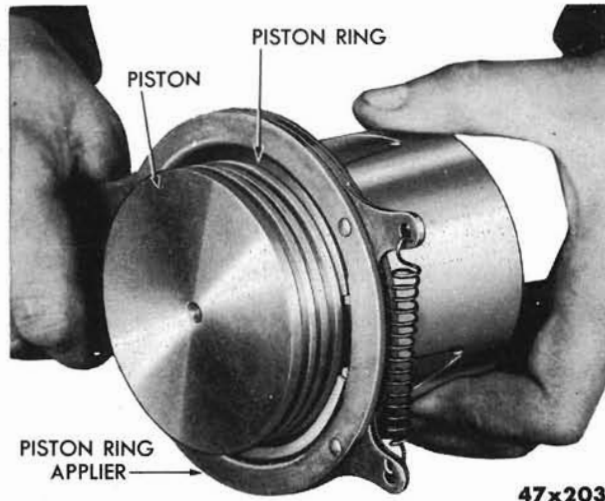
**LIGHT WEIGHT CAST IRON PISTONS.** Because of similar expansion between the piston and the piston pin, the fitting of the piston pin should be such as to allow the pin's own weight to slowly carry it through the holes in the piston bosses. Both the piston and pin should be clean and dry at 70° F.

**d. Fitting Piston Rings.** When installing new rings, remove all carbon from grooves and oil holes



32X87

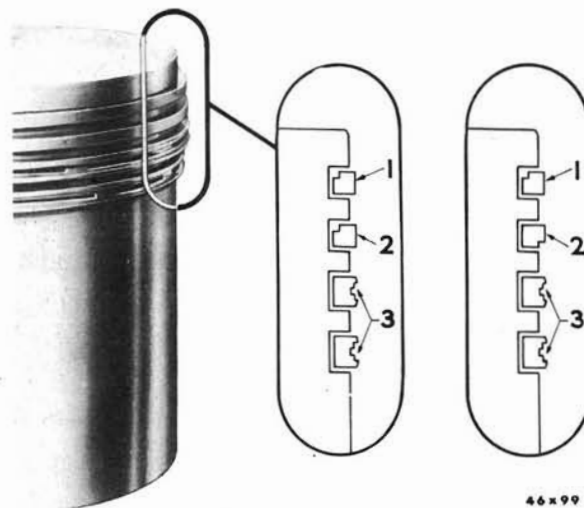
**Figure 30—Checking Ring Clearance in Groove**



47x203

**Figure 31—Installing Piston Rings with Tool DD-872**

in the pistons. Piston ring gap should be measured with ring about 2 inches from the bottom of the cylinder bore to which it is fitted. Be sure the ring is square in the cylinder bore and measure the gap with proper thickness feeler gauge (fig. 29). Measure ring side clearance as shown in figure 30 with a feeler gauge. Piston rings should be installed on the piston by means of a piston ring installing tool, as shown in figure 31. Rings should be installed in the piston grooves in positions indicated in figure 32. (See paragraph 60 for Ring Clearance.)



46x99

**Figure 32—Regular Coated Rings**

1—Compression ring—upper 2—Compression ring—lower  
 3—Oil rings

When installing a new set of MOPAR Oil Saver or Oil Master piston rings without reconditioning cylinder bores, always remove the top ridge of the bore with a reliable ridge reamer. Care must be taken not to cut below the top of the upper ring position in the bores. Also cut the ridges before removing the piston assemblies, keeping the top of the pistons covered to insure cuttings from reaching the bearings, crankshaft, etc.

Oil Saver piston ring sets are provided for newly rebored engines and are also recommended for engines with a slight amount of cylinder wear. For cylinders with taper wear, Oil Master rings are recommended.

IND. 5, 5A, 6 and 6A engines and also IND. 7 and 7A engines after Serial No. 1486 and IND. 8 and 8A engines after Serial No. 1460 are factory equipped with chromium plated top compression rings to give extra long ring and cylinder life. All replacements on these engines should be made with similar rings except when the cylinder bores have more than .015 inch taper wear. If the pistons have more than .006 inch side clearance, when chromium plated top rings are installed, the pistons also should be replaced.

Piston ring sets are available through the Chrysler Motor Parts Corporation, Parts Plants and Depots in standard and oversizes as listed in the Parts List.

## 17. CRANKSHAFT AND MAIN BEARINGS.

**a. Description** (fig 20). The crankshaft is counterweighted integral with the shaft and thoroughly balanced. The shaft is mounted in four replaceable

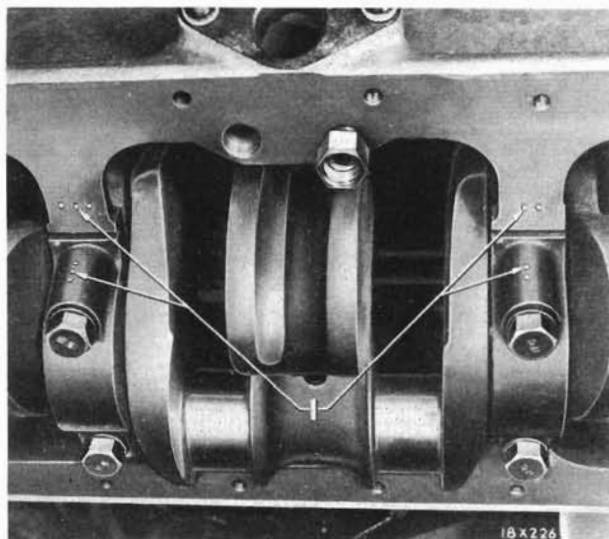
precision type bearings of the babbitt-on-steel type. No fitting or scraping is required when installing new bearings. The bearings are accessible for inspection or replacement with the oil pan removed.

### **b. Removal and Installation of Crankshaft.**

- (1) Remove power take-off or transmission (if so equipped).
- (2) Drain engine oil and remove oil pan.
- (3) Remove clutch cover pressure plate assembly and disc.
- (4) Remove crankshaft pulley.
- (5) Remove engine front support, timing chain case cover, camshaft gear and timing chain and timing case cover back plate.
- (6) Remove oil pump suction pipe and screen assembly.
- (7) Remove oil line from oil pump outlet to cylinder block connection.
- (8) Remove all bearing caps and lift out crankshaft. Punch mark the crankshaft bearing caps and the block for identification before removing the caps so that they will be reinstalled in the same location. See figure 33. The center caps are machined slightly offset and will cause damage if installed incorrectly.
- (9) Always use new lock washers, gaskets and oil seals when installing the crankshaft.

### **c. Removal and Installation of Main Bearings.**

- (1) Remove oil pan, clutch housing pan and oil pump strainer.
- (2) Remove two lower screws from chain case cover.



**Figure 33—Punch Marks (1) on Cylinder Block and Crankshaft Bearing Caps**

(3) Remove oil pan front end oil seal plate when used.

(4) Loosen bearing caps.

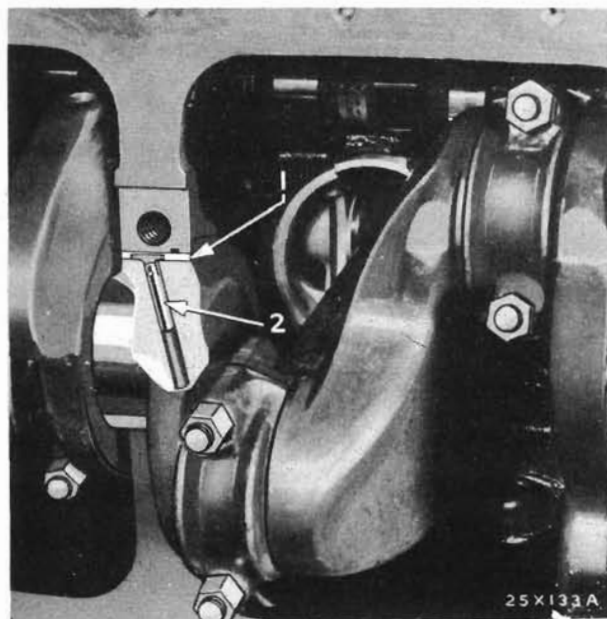
**NOTE**

*With the use of special tools, it is possible to remove and replace main bearing shells without dropping the crankshaft.*

(5) Remove one bearing shell at a time. To do this, remove one of the bearing caps and remove the upper main bearing shell. An old bearing shell may be used to start the bearing from its seat, although use of a special tool (fig. 34) will facilitate its removal.

(6) To install a new upper main bearing shell, first remove sharp edge from plain side of bearing by slightly chamfering it and then slide the new shell in place, using the special tool if available.

(7) After installing the lower bearing shell, draw the cap down evenly.



**Figure 34—Removing Upper Half of Main Bearing Shell**

1—Main bearing shell

2—Tool C-584

**d. Interchangeability of Main Bearing Halves.**

The upper and lower halves of Nos. 2 and 3 main bearing shells for 4-journal crankshafts are alike and interchangeable. Nos. 1 and 4 main bearings are different in construction from Nos. 2 and 3 and are not interchangeable with others. Bearing half which has oil hole should be used for upper half of bearing.

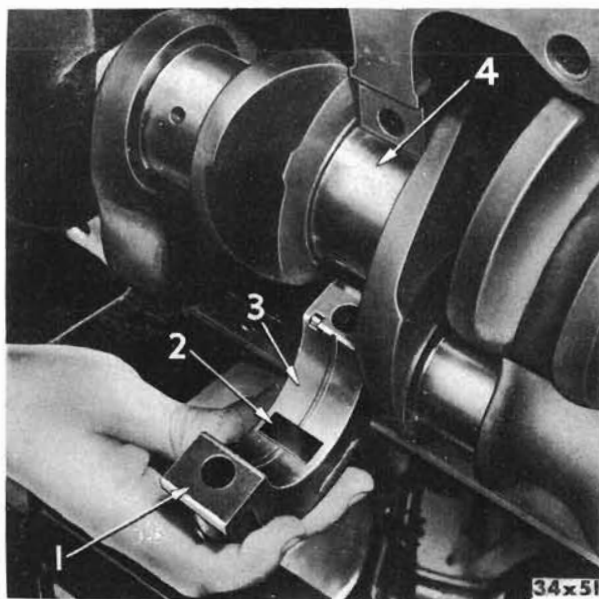
**e. Checking Main Bearing Clearance.** Desired main bearing clearance is .0005 to .0015 inch. Whether clearance is within these limits can be checked as follows:

**TO SEE IF FIT IS TOO TIGHT.** With all bearing shells in place and bolted up tight, the crankshaft must be free enough to turn by hand. If the crankshaft can be turned by hand all the way around one complete revolution, the clearance is adequate. If the crankshaft cannot be turned all the way over by hand, the fit is too tight.

TO SEE IF FIT IS TOO LOOSE. Take each main bearing one at a time and remove the cap. Use a piece of .002 inch feeler stock, 1/2 inch wide and 1 inch long; oil stock well and place it between the bearing shell and the crankshaft journal (fig. 35). Draw the cap nuts up tight. If a drag is present when turning the crankshaft a full revolution by hand (or if it cannot be turned by hand), the clearance is less than .0015 inch. If no drag is felt, the main bearing which has the feeler in it is too loose.

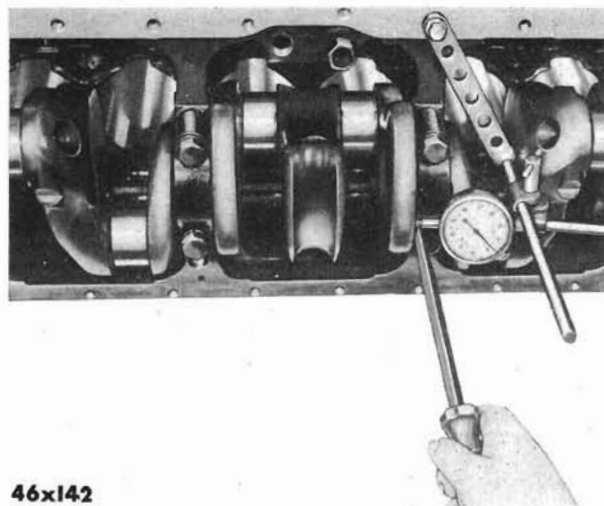
If the main bearing clearance is excessive, the crankshaft journals should be checked for out-of-round and taper. It is desired that both out-of-round and taper not exceed .001 inch. Undersize main bearings are available from Chrysler Motors Parts Corporation, Parts Plants and Depots.

**f. Checking Crankshaft End Play.** To check the amount of end play of the crankshaft, measure the space between the end of the rear main bearing and the side of the adjacent thrust shoulder. To



**Figure 35—Using Feeler Stock to Check Main Bearing Clearance**

- |                          |                      |
|--------------------------|----------------------|
| 1—Crankshaft bearing cap | 3—Crankshaft bearing |
| 2—Shim stock             | 4—Crankshaft         |

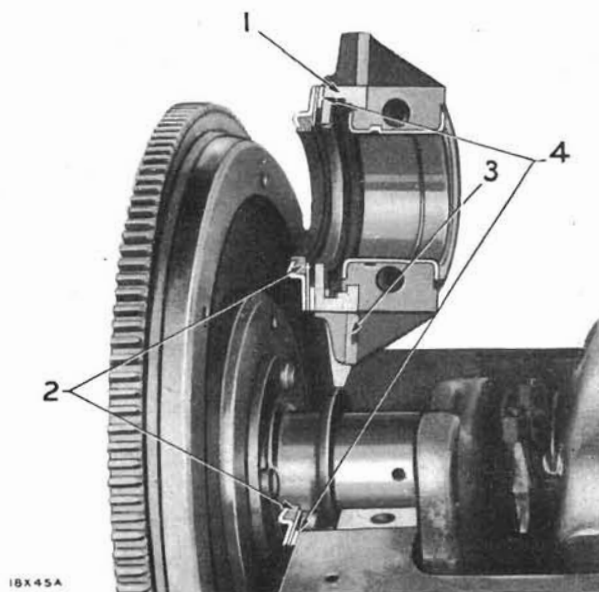


46x142

**Figure 36—Checking Crankshaft End Play Using Dial Indicator**

do this, mount an indicator so as to rest against the flywheel or some vertical surface of the crankshaft (fig. 36). End play then can be determined by prying the crankshaft back and forth.

**g. Installation of Main Bearing Oil Seals.** SPLIT TYPE OIL SEAL. The rear main bearing contains oil seals and gaskets which prevent leakage of oil at this point. The seals and gaskets



18X45A

**Figure 37—Rear Bearing Oil Seals**

- |                    |                           |
|--------------------|---------------------------|
| 1—Cap gasket—left  | 3—Cap gasket—right        |
| 2—Bearing oil seal | 4—Bearing oil seal gasket |

should be carefully located in the cap before the cap is installed. Figure 37 illustrates construction and location of these seals.

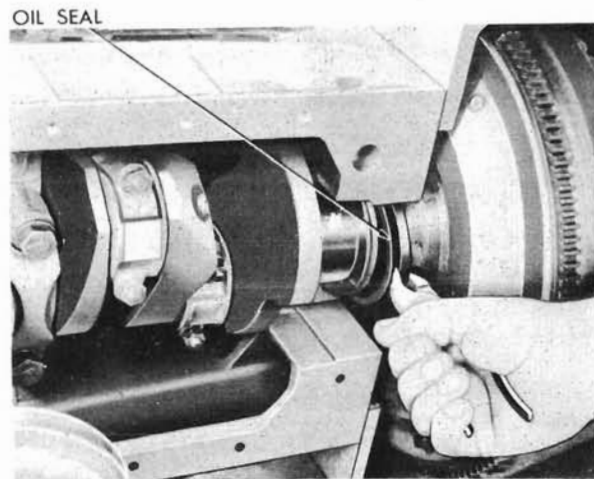
**ONE-PIECE OIL SEAL.** To install the one-piece type oil seal, the following procedure is recommended:

- (1) Remove engine oil pan.
- (2) Remove lower clutch housing pan. Remove nuts from two power take-off-to-clutch housing lower studs. Remove studs while holding pan from falling. Lay pan aside.
- (3) Loosen all main bearing cap screws three turns.
- (4) Remove rear main bearing cap.
- (5) Remove old oil seal. Grasp with pliers and pull down and out.
- (6) Install new seal (fig. 38) with wiping edge forward as follows: Apply tire soap (or glycerine-base soap) or cup grease to one end of seal, being careful not to get any of this lubricant between ends to make sure split can close and seal when installed. Start one end in slot and push in until end is near the top of the bearing. Start other end and work into place. Work seal into position so that joint or split comes together near top. Wipe a little more lubricant around lip of seal so that bearing flange will slip into place.

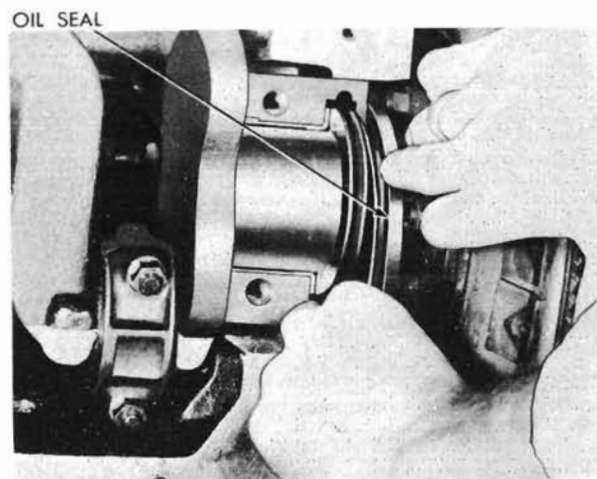
- (7) Inspect rear bearing cap rear surface for sand holes and also for tapped holes for the two-piece seal to determine if they are drilled through oil slinger groove flange. If either case is encountered, sand hole should be plugged by welding, screw holes plugged by installing screws which have been dipped in sealing compound.



**OIL SEAL**



**REMOVING**



**INSTALLING**

**46x124**

**Figure 38—Installing Main Bearing  
One-Piece Oil Seal**

- (8) Install and tighten rear bearing cap.
- (9) Tighten remaining bearing cap attaching screws.
- (10) Install clutch housing lower pan.
- (11) Install oil pan.
- (12) Refill engine with engine oil.

**NOTE**

*When replacing the split or two-piece rear bearing oil seal with one-piece seal, both halves of split seal must be removed. It may be necessary to remove the power take-off, clutch and fluid drive if used before the seal can be removed.*

**h. Fitting of Main Bearing Caps.** Main bearing caps which have become damaged or broken in service, should be replaced. Main bearing caps are available through the Chrysler Motor Parts Corporation, Parts Plants and Depots.

At no time should a main or connecting rod bearing cap be filed, dressed down or shimmed except when installing a replacement cap and then only for its original installation in an engine. Replacement caps conform in every respect to original caps, with exception of stud holes which are  $\frac{1}{64}$  inch larger in size and bearing cap length which is  $\frac{1}{16}$  inch shorter. This permits fitting of bearing caps to an engine by shimming or filing in order to obtain proper bearing clearance.

Fitting is necessary, because bearing caps manufactured with the engine are line-bored in place on cylinder block with which they are used. Replacement caps, however, are reamed in a master fixture, resulting in variation which will affect bearing clearance.

**i. Undersize Main and Connecting Rod Bearings.** Main and connecting rod bearings are furnished in the undersizes as listed in the Parts List.

The .001 and .002 inch undersize bearings are for standard crankshafts that are slightly worn or a little undersize.

Bearings should be replaced in pairs; never use a new bearing half with an old half.

## 18. CAMSHAFT, BEARINGS AND TIMING CHAIN.

**a. Description.** (fig. 20). The camshaft incorporates cam lobes for actuating the valve tappets and an eccentric for operating the fuel pump. The distributor and oil pump are driven by a gear which is an integral part of the shaft. The camshaft is mounted in the cylinder block in four bearings. The three front bearings are replaceable with the camshaft removed; the rear bearing is machined into the block. The camshaft is driven by a chain which requires no adjustment. The chain case cover contains an oil seal which prevents leakage of oil at the front of the engine.

**b. Removal and Installation of Camshaft Bearings.** Camshaft bearings seldom require replacement. When new bearings are to be installed, a suitable pulling fixture is required to remove the bearings, to prevent burrs and damage to the bores in the block. Any damage to the bores will interfere with the installation of new bearings.

Replacement bearings are finished to such close limits when manufactured that they do not require reaming, scraping or burnishing.



c. **Timing Chain and Sprockets** (fig. 39). Correct valve timing is established by installing the timing chain with the sprockets in correct relationship to each other. Rotate the crankshaft until the "0" mark on the crankshaft sprocket is in line between the centers of the camshaft and crankshaft. Install the camshaft sprocket with three screws, then turn the camshaft until the timing mark "0" on the camshaft sprocket is also in a straight line between the centers of the two shafts. Remove the camshaft sprocket and install the timing chain over both sprockets. Reinstall the camshaft sprocket without moving the camshaft.

d. **Installation of Chain Case Cover Oil Seal** (fig. 40). The chain case cover oil seal prevents leakage of oil at the front of the engine. It is a spring-backed composition seal contained in a stamped steel housing. The seal is a press fit in the chain case cover. A composition gasket is used between the seal and the chain case cover to prevent oil leakage around the outer edge of the seal. To install the seal, first place a new composition gasket in chain case cover, then drive seal into place using a drift or a piece of flat metal slightly

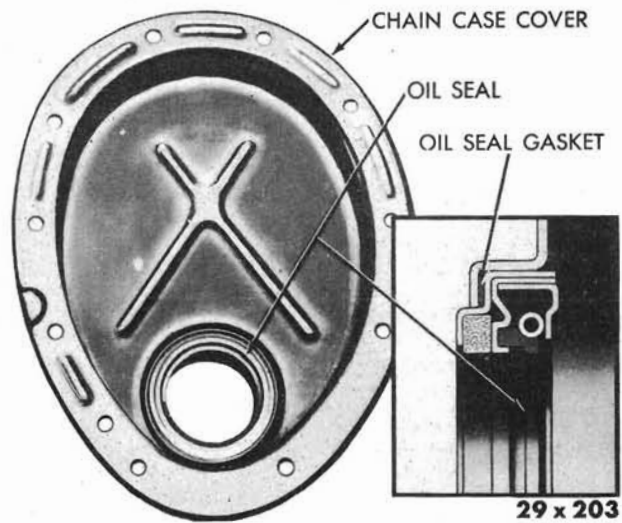


Figure 40—Chain Case Cover Oil Seal

larger than the seal, to assure a tight, even contact between the seal and its seat. When installing chain case cover, care must be taken to center seal on crankshaft before tightening chain case cover screws. This can best be accomplished by use of special tool (fig. 41).

19. VALVES, SPRINGS AND TAPPETS.

a. **Description.** Hardened valve seat inserts are installed in the exhaust ports; the intake valve seats are machined into the cylinder block. Intake valve seats may be refaced; exhaust valve seat

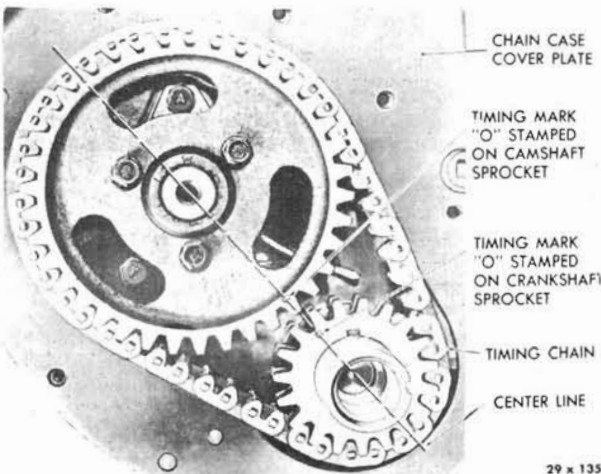


Figure 39—Installation of Timing Chain and Sprocket

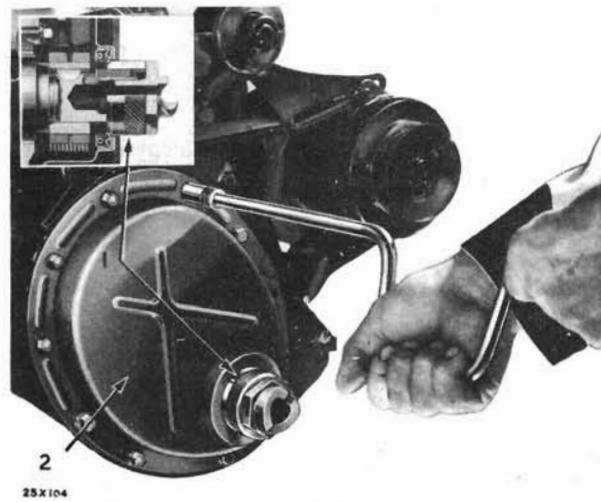


Figure 41—Centering Chain Case Cover Oil Seal  
 1—Centering Tool C-522 . 2—Engine chain case cover and oil seal

inserts are extremely hard material and must be reground with a special grinding stone operated with a high speed motor. Oversize exhaust valve seat inserts are available for replacement. (See Part Two, Parts List.)

The valve stems operate in guides which are replaceable with the valves and springs removed. The valve tappets are of the "mushroom" type with self-locking adjusting screws. The valves, valve seats, guides and springs are accessible for inspection, repair or replacement with the cylinder head and valve spring covers removed. The tappet adjusting screws are replaceable with the valves removed and the tappets can be replaced with the camshaft removed.

Sodium-cooled exhaust valves are standard equipment on some models—Ind. 7, 7A, 8 and 8A engines. These are specified for heavy duty operation. (See fig. 42).

The sodium-cooled valve stem is made hollow and then partially filled with pure metallic sodium, which liquefies at 207° F. In liquid form, the sodium moves up and down with the motion of

the valve in operation and facilitates the transfer of heat from the valve head to the engine cooling system. Engines equipped with sodium-cooled valves can be identified by a plate (fig. 43) attached to the right side of the engine just back of the engine serial number plate.

**CAUTION**

*The exhaust valve stems are filled with metallic sodium which is very inflammable when exposed to moisture and is capable of causing serious explosions and burns. Any discarded valves, particularly if ruptured or cut open, should be put into a box and buried where they will not be disturbed. Do not allow the sodium to contact the skin as serious burns are liable to result.*

**REPLACEMENT OF TAPPETS.** Valve tappets seldom require replacement as they operate

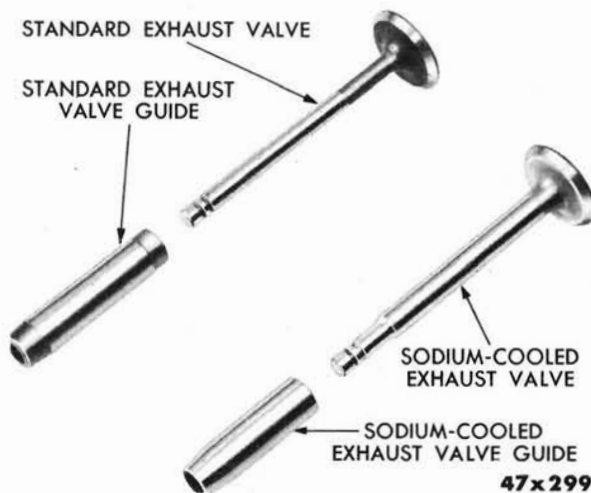
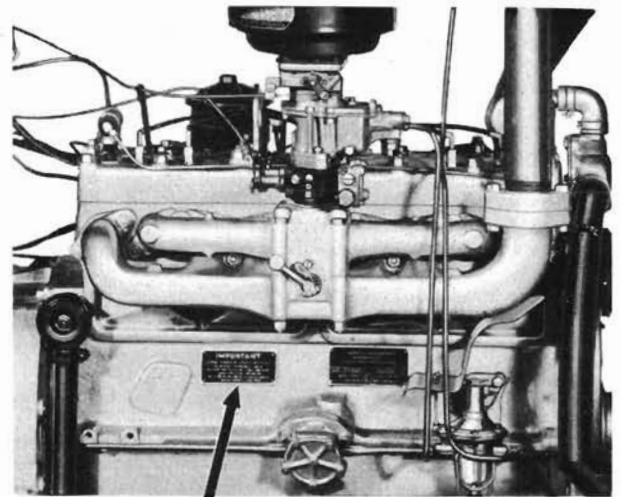


Figure 42—Valves and Guides



**IMPORTANT**  
THIS ENGINE IS EQUIPPED WITH  
SODIUM COOLED VALVES  
ADJUST VALVE TAPPET CLEARANCE  
WITH ENGINE HOT  
INTAKE .010 AND EXHAUST .018  
WITH ENGINE COLD  
INTAKE .010 AND EXHAUST .020

Figure 43—Sodium Valve Identification Plate

in a spray of oil. To replace the tappet assemblies, it is necessary to remove the camshaft. Oversize tappets are available for replacement.

#### b. Valves and Springs.

**REMOVAL AND INSTALLATION.** To remove the valves and springs, drain the cooling system, remove the cylinder head and gasket and remove the valve cover plates. While compressing the valve springs, remove the valve locks and then lift out the valves. Use a suitable tool to prevent the valve locks falling into the oil pan when removed from the valves. When installing the valve springs, make sure they are properly seated.

**INSPECTION OF SPRINGS.** If the metal is rusted or etched, replace all springs. The specifications of valve springs are given in paragraph 61. Replace any spring that compresses with less than the desired load, as a weak spring will cause inefficient engine operation.

#### c. Valve Stem Guides.

**REMOVAL.** Drift the guides down and out of the block, break off the lower exposed section of the guide and then drive out the upper portion of the guide. On engines equipped with sodium-cooled valves, remove the tappet screws and drift the bronze valve stem guides down and out of the block.

**INSTALLATION.** Start the intake guides in the block with the tapered end up and the exhaust guides with the tapered end down. Drift the guides into the block so that the tops of the guides are below the head surface of the cylinder block according to the dimensions given in paragraph 63.

Ream the guides with an expansion or solid

fluted reamer to the dimensions given in paragraph 61. Ream the bronze guides used with sodium-cooled valves with special reamer C-743 to dimensions given in paragraph 61.

**d. Grinding Intake Valves.** The intake valve seats in the cylinder block should be cut with a suitable valve seat cutter. The seats should be cut only enough to remove pits or other depressions in the seat. Then, grind a new seat surface on valve head with a valve grinding machine. If valve seat width exceeds  $\frac{3}{32}$ , reduce the width to  $\frac{1}{16}$  to  $\frac{3}{32}$  inch by facing the top of the seat to a 20 degree angle.

When new seats are finished, valves and seats may be lightly lapped together with suitable valve grinding compound to assure a tight seat. The valve heads have plain surfaces and may be oscillated by means of a rod fitted with a vacuum cup and operated either by machine or hand. Considerable care must be taken to make certain that all grinding compound is removed from valve, valve seat, intake port and cylinder block.

#### e. Reconditioning Exhaust Valve Seat Inserts.

Because of the hardness of special valve seat inserts used in exhaust valve ports, it is impossible to recut these seats. They must be reground, using special equipment. Use the correct size stone with an angle of 45 degrees and grind just enough to form a smooth seat  $\frac{1}{16}$  to  $\frac{3}{32}$  inch wide. If the seat is excessively wide, use a 20 degree stone to reduce the width. Use a dial indicator to check the runout which must not exceed .001 inch. Clean away all traces of abrasives after grinding the seat.

#### f. Replacement of Exhaust Valve Seat Inserts.

After removing the valves, remove the valve seat insert. Special Tool C-732 is designed specially for

this purpose. Cut the counterbore .0035 inch smaller than the insert that is to be installed, with valve seat insert cutting tool. Run the cutter down until it bottoms in the original counterbore. Clean cuttings from the counterbore and valve port. Chill the insert with dry ice and install. Special Tool C-767 is designed for installing the valve seat inserts.

**NOTE**

*Valve seats are fitted very tightly and can be installed by chilling with dry ice to obtain maximum contraction permitting valve seat to be readily installed in place in cylinder block. If standard seat insert is too loose, a .010 inch oversize is available in which case cylinder block will have to be cut to fit oversize valve seat insert. Tool Kit MH-N-1 is available for this purpose.*

**g. Adjusting Valve Tappets** (fig. 44). Valve tappets should be adjusted with engine running at normal operating temperature. The valve tappet screws are of self-locking type, without lock nuts. Adjust standard valve tappets cold to: intake .010 inch, exhaust .016 inch. For sodium-cooled valves, refer to Sodium Valve Identification Plate on valve side of engine.

It is important that the proper clearance be maintained to insure satisfactory engine performance.

**h. To Check Valve Timing.** To check valve timing, proceed as follows:

(1) Adjust the rear intake valve tappet to .014 inch clearance with the engine cold.

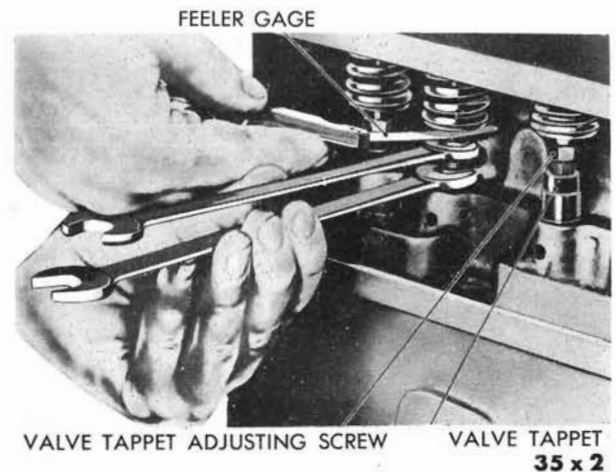
(2) Using a timing indicator in the hole over the rear cylinder, locate the top dead center position of that piston.

(3) Rotate the engine until the rear intake valve tappet just makes contact with the valve stem. At this point, the piston should be within specified range as shown in paragraph 62 before TDC.

If for any reason timing chain or sprockets have been removed, they should be assembled so that marks on sprockets line up as shown in figure 39.

**i. Valve Maintenance.** If, with proper clearance, the valve tappets are noisy, the following points should be checked:

- (1) Tappets loose in their guides.
- (2) Tappets not properly rotating, causing uneven wear on tappet faces.
- (3) Weak valve springs.
- (4) Valves sticking in valve guides.
- (5) Valves loose in valve guides.
- (6) Valve springs cocked or not seating properly.
- (7) Warped valve.
- (8) Valve seat and guide not in alignment.



**Figure 44—Adjusting Valve Tappets**

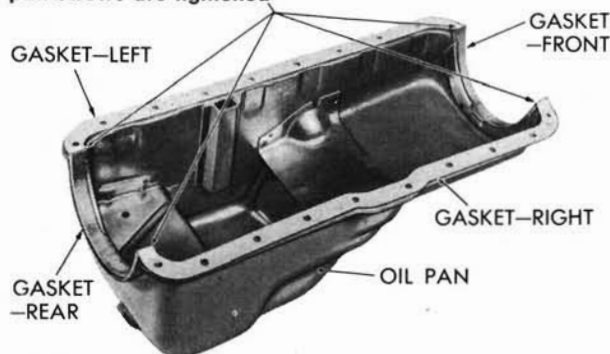
## 20. ENGINE OILING SYSTEM.

**a. Description.** The engine is lubricated by oil drawn through a strainer from the oil pan by the oil pump. The pump is mounted on the right side of the engine and is driven by a spiral gear on the camshaft.

The oil is forced under pressure through drilled passages in the cylinder block to the camshaft bearings, crankshaft and crankshaft bearings. The oil is also forced under pressure through drilled passages in the crankshaft to the connecting rod bearings. The cylinder walls, pistons, piston pins and valve tappets are lubricated by oil spray from crankshaft rotation and metered holes in the connecting rod bearings.

Oil is forced, in a limited quantity, from the front camshaft bearing directly onto the timing chain and sprockets. The camshaft thrust plate is lubricated by oil forced through a passage in the camshaft. Maximum oil pressure is limited by a relief valve located in the main oil passage on the left side of the engine. (See figure 46.)

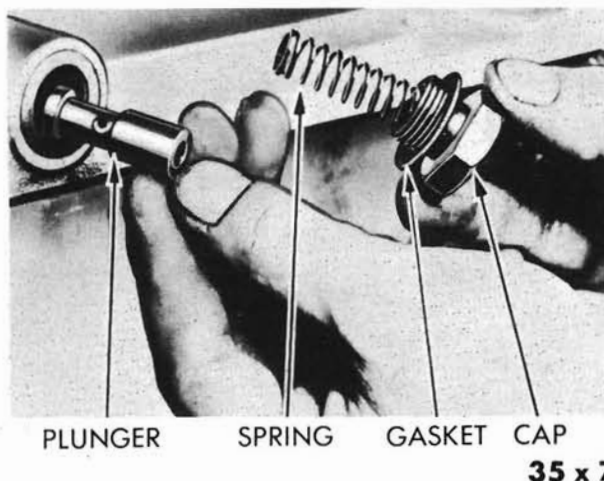
**Do not cut off gasket ends, they will compress when oil pan screws are tightened**



**Hold side gaskets in place with heavy grease or tie in place with light string through several screw holes while installing the oil pan. If string is used, remove string before tightening screws.**

**35 x 14**

**Figure 45—Oil Pan Gaskets**



**Figure 46—Oil Pressure Relief Valve**

**b. Oil Pan.** When installing the oil pan, place new end gaskets in position and let the ends of the front and rear gaskets protrude an equal distance above the flange. Place new gaskets on the flange and over the ends of the end gaskets as shown in figure 45 and install oil pan, drawing up all cap screws evenly and tightly.

**c. Floating Type Oil Strainer.** The oil pump strainer (fig. 20) is attached to the oil pump suction pipe elbow. The strainer is pivoted so that it is free to float near top of oil level. A stop prevents the float moving more than a limited amount. Clean, fresh oil is drawn from the top of the oil level due to the pivoting action of the strainer. Sediment or other foreign particles settle to the bottom of the oil pan.

The screen can be easily cleaned by removing the bottom plate on the oil strainer float (with oil pan removed). The screen is constructed so that if it becomes clogged, oil will by-pass around the screen to the oil pump. Should the oil level change due to the movement of the engine or other causes, the oil strainer will follow the top of the oil level maintaining a constant supply of oil for the oiling system.

### CAUTION

*Never operate the engine at an angle greater than 15 degrees because serious damage to the connecting rods, main bearings or other internal parts will result. Also fuel float level will be greatly affected.*

**d. Oil Pressure.** If high or low pressure is indicated on oil pressure gauge, and proper amount of proper viscosity of oil is in crankcase, the cause should be determined and corrected. Following are some of the causes of improper oil pressure:

- (1) Broken oil lines or tubes.
- (2) Leaky connection in oil tube or lines.
- (3) Defective oil gauge.
- (4) Clogged oil pump or oil strainer screen.
- (5) Worn oil pump.
- (6) Loose main or connecting rod bearing.
- (7) Improper viscosity of oil.
- (8) Thick pump cover gasket.
- (9) Oil pressure relief valve plunger sticking.

**e. Oil Pressure Relief Valve** (fig. 46). If the oil pressure gauge is known to be good and the pressure shown is 40 pounds at operating speed, the oil pressure relief valve may not be seating properly. Remove the valve and inspect the plunger, spring and seat.

**f. Replacing Oil Filter Element.** Change element while oil is hot.

- (1) Remove drain plug and drain filter.
- (2) Remove cover, element and gasket.
- (3) Wipe out housing.
- (4) Insert new element.

- (5) Install cover using new gasket.
- (6) Install drain plug.
- (7) Run engine and check for leaks.
- (8) Check oil level. Usually the new filter will absorb a quart of oil.

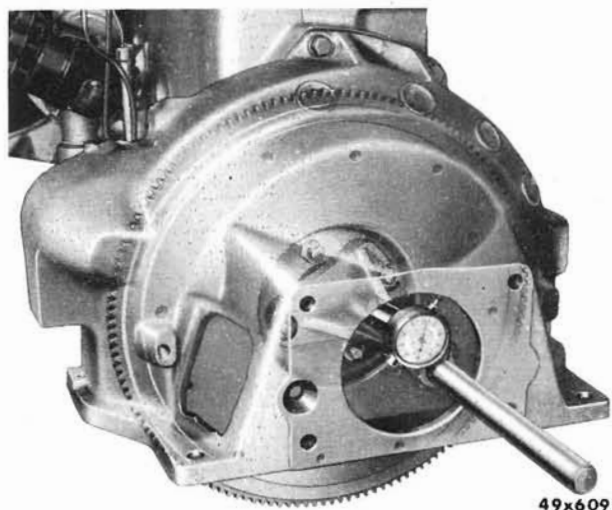
### 21. ALIGNMENT OF CLUTCH HOUSING (IF SO EQUIPPED).

Replacement of clutch housing or reinstalling the original clutch housing (if removed for any reason), must be correctly aligned when installed. Out-of-round of the bore must not exceed .005 inch total indicator reading. To correctly align clutch housing with or without fluid drive, proceed as follows:

(1) Inspect the housing face where it contacts the rear of the engine block for particles of dirt and burrs; remove burrs with a file, then clean both surfaces.

(2) Start the two dowel pins in the block from the front end so they protrude beyond the machined face of the engine block and install the clutch housing. Install clutch housing to block cap screws, making them just snug enough so the housing can be shifted if necessary by tapping with a mallet.

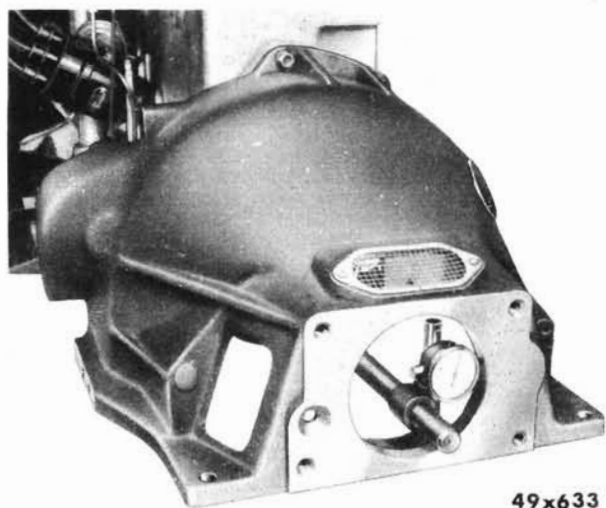
(3) Install the fixture C-870 to the flywheel attaching bolts (fig. 47) or, if fluid drive unit is to be installed, attach the fixture to the crankshaft flange bolts and install the indicator (C-435 or C-430), as shown in figure 48. Rotate the crankshaft and check the inside diameter of the housing bore; it should not vary more than .005 inch to one complete revolution of the crankshaft. If alignment is necessary, remove the dowel pins and tap



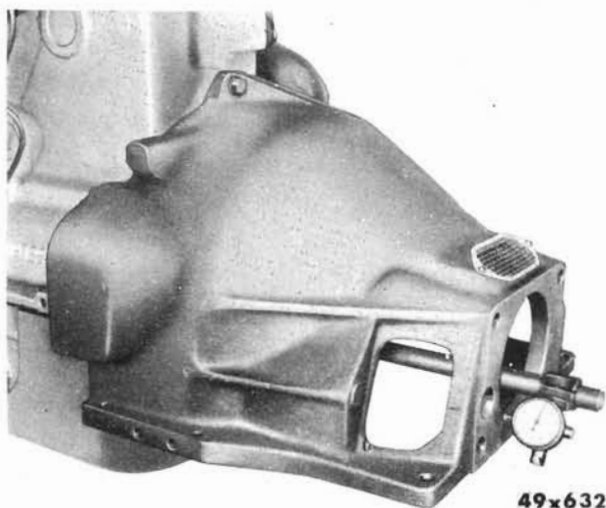
**Figure 47—Method of Attaching Fixture C-870  
 (Flywheel Type Housing Illustrated)**

the housing until it comes within the specified tolerance. After obtaining correct alignment, tighten the housing cap screws to 30 to 35 foot pounds torque.

(4) Change the position of the dial indicator and check the rear face of the housing as shown in figure 49. This tolerance must be within .002 inch. Assuming that all burrs and dirt has been removed as described in step (1), this tolerance will no doubt be within the specified limits.



**Figure 48—Checking Clutch Housing Bore  
 (Fluid Coupling Type Housing Illustrated)**

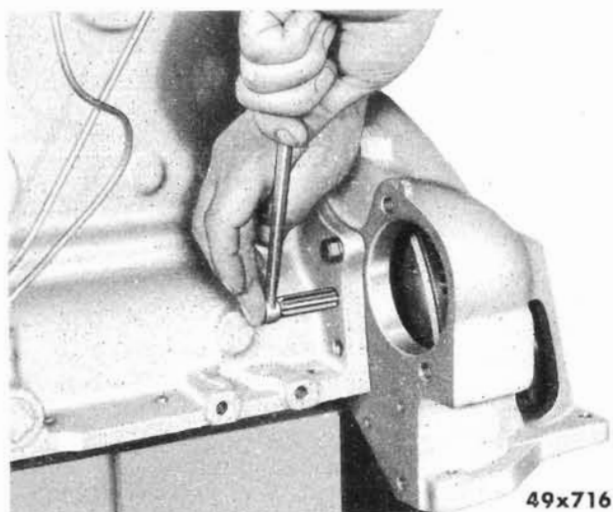


**Figure 49—Checking Rear Face of Housing**

If alignment of the housing was necessary as described in step (3), the dowel pin holes will have to be reamed. Ream with Tool C-860 as shown in figure 50 and install .512 inch oversize dowel pins. Continue to assemble the clutch assembly.

*NOTE*

*Failure to align clutch housing may result in hard shifting of transmission and the possibility of gear disengagement.*



**Figure 50—Reaming Dowel Pin Holes**

## 22. REPLACING STARTER RING GEAR ON FLUID DRIVE.

### a. Removal of Ring Gear.

(1) Remove the fluid drive unit from the engine and clamp it in a swivel vise so the weight rests on the bench. Refer to figure 54.

(2) Using a hack saw, cut the six weld spots parallel to the back face of the ring gear to within 1/16 to 3/32 inch of the housing as shown in figure 51. Care must be taken so as not to cut too deep.

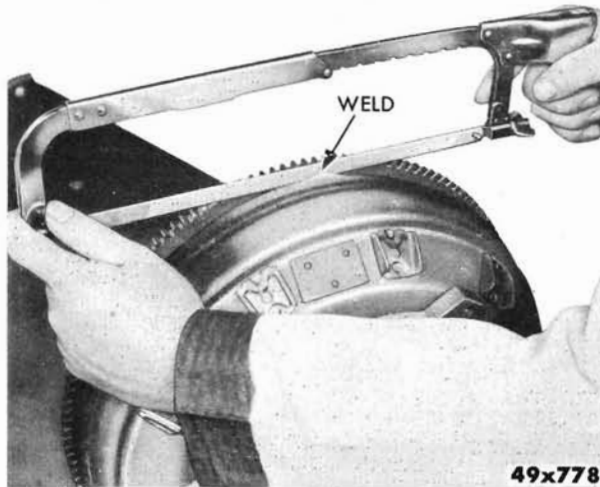


Figure 51—Cutting Ring Gear to Housing Weld Spots

(3) Scribe a line around the housing as shown in figure 52. This is for reassembling purposes and gives the approximate position for the new ring gear.

(4) With the front face down, and using a heavy drift and hammer, drive the ring gear off as shown in figure 53.

(5) Position the fluid drive assembly in a vise and remove all of the remaining welded metal with a 12 inch bastard file. Care should be taken when filing so as not to file more than just the remaining weld as shown in figure 54.

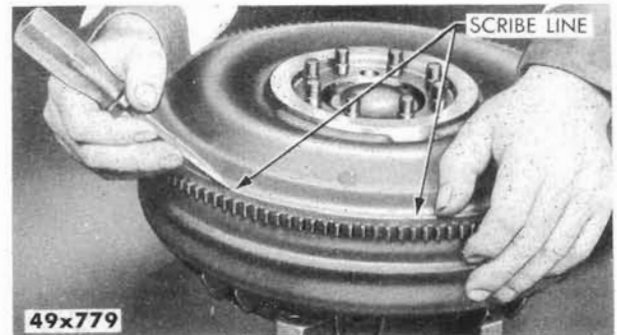


Figure 52—Scribing Housing for Ring Gear Location

b. Installing Ring Gear. The new ring gear being approximately .018 inch less than the diameter of the coupling, must be heated to a uniform temperature of *not more than 212° F.* (bake oven C-794 will facilitate) to install.

With ring gear heated as described above, place it on the coupling (chamfered teeth up) and with a rawhide mallet or fibre block, drive the ring gear down so the scribed mark on the coupling is just visible.

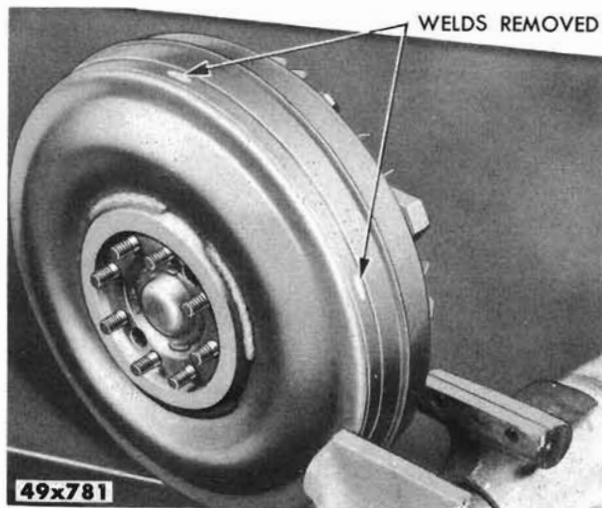
### NOTE

*If oven C-794 is not available, the ring gear may be submerged in boiling water for approximately 5 minutes and then installed chamfered teeth up. Or if a welding torch is used to heat the ring gear, use a medium-size welding tip and direct the flame on*



Figure 53—Driving Ring Gear Off





**Figure 54—Remaining Weld Removed  
from Fluid Drive**

*the outer face of the ring gear adjacent to the inside diameter.*

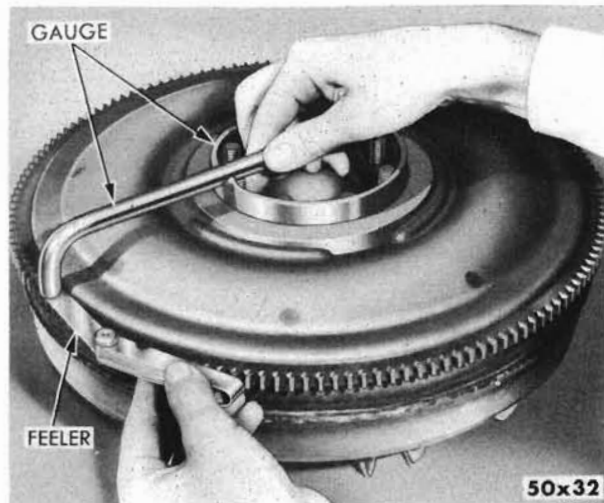
*(DO NOT APPLY FLAME TO TEETH.)  
Place a few drops of water on the ring gear as a temperature check and rotate the coupling while applying the flame. In most instances, the ring gear will fit down in place before the drops of water boil. DO NOT OVERHEAT.*

Place the aligning gauge C-896 in the crankshaft counter bore as shown in figure 55.

There should be a uniform clearance between the checking face of the gauge and the ring gear and should not exceed .020 inch. This clearance can be altered by tapping the ring gear up or down with a rawhide mallet. The .020 inch feeler gauge shown in figure 55 is actually the "NO GO" limit.

Reweld ring gear to housing using original spaces provided. Apply an equal amount of weld to each space to preserve the balance of the unit.

To prevent burning through the housing, the arc should be directed at approximately 45 degree angle from the face of the gear. USE ONLY ARC



**Figure 55—Positioning Ring Gear  
on Fluid Coupling (Tool C-896)**

WELDING EQUIPMENT, NEVER GAS WELD.

The following suggestions are offered as an aid in making the above weld. Welding current—200 amps. Straight polarity D.C. or A.C. A good electrode to use is a  $\frac{5}{32}$  inch diameter Fleet Weld number 47 or a  $\frac{5}{32}$  inch diameter General Electric number W28 or equivalent.

### **23. SERVICING FLUID DRIVE SEAL ASSEMBLY.**

The loss of fluid from the fluid drive unit will be evidenced by excessive engine speeds, similar to a slipping clutch. The cause of fluid loss should be determined by an inspection after removing the clutch housing pan. If leakage is at the seal at the front end of the hub at the clutch driving plate, new parts must be installed.

Two types of seals are referred to in this section, the "bellows type" and the "housing type." The housing type seal shown in figure 62 is interchangeable with the bellows type seal shown in figure 56,

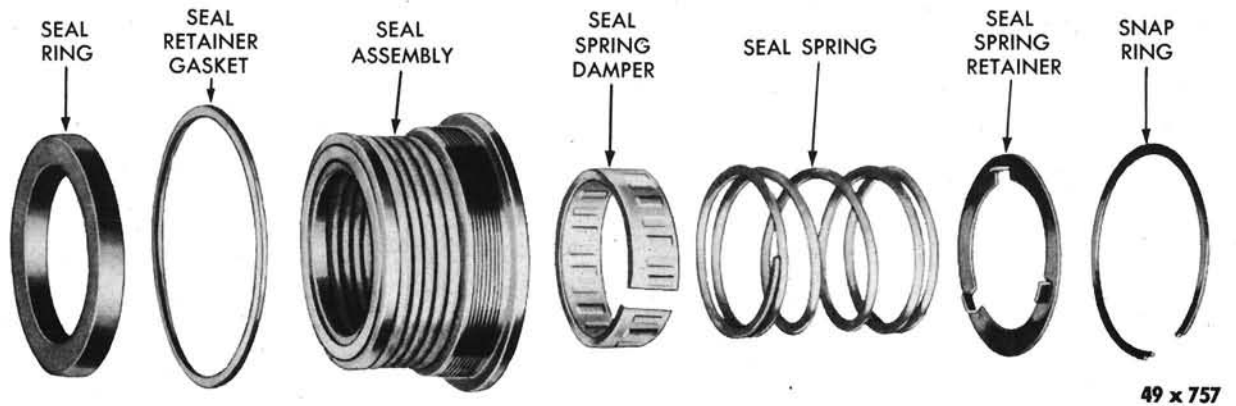


Figure 56—Bellows Type Seal (Exploded View)

as an assembly only. No attempt should be made to interchange individual parts.

To service either of the fluid drive seals, proceed as follows (fluid drive unit removed):

**CAUTION**

*Cleanliness cannot be over-emphasized during the following operations. Specific references are made in paragraph b.*

**a. Bellows Type Seal Assembly.**

- (1) Remove filler plug and drain unit.
- (2) Bend down tab on lock washer and with

special wrench C-607 (Tool C-784 is excellent for holding driving plate), remove clutch driving plate retainer nut as shown in figure 57.

(3) With special puller C-665 from Kit C-890, remove driving plate from runner hub as shown in figure 58.

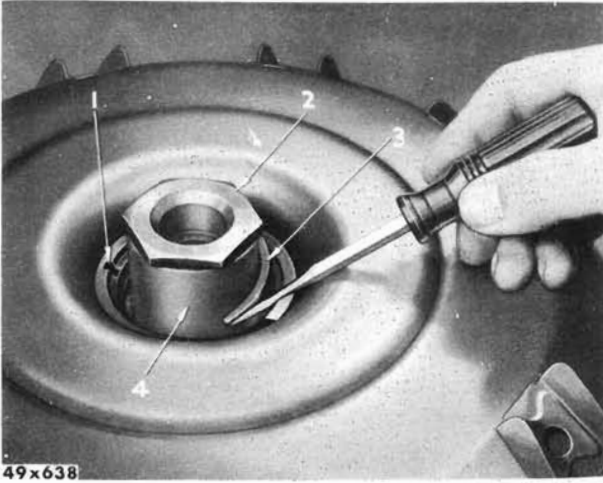
(4) Using special fluid drive bellows spring compressing sleeve C-613, compress spring using driving plate retainer nut. Remove seal spring retainer snap ring from the bellows seal retainer as shown in figure 59. Withdraw spring retainer, spring and damper if so equipped.



Figure 57—Removing Clutch Plate Nut



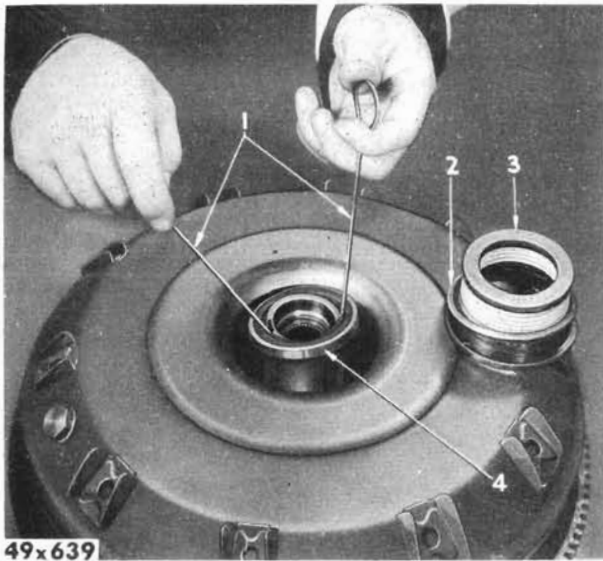
Figure 58—Removing Clutch Driving Plate



**Figure 59—Removing Retainer Snap Ring**

- 1—Wrench slot in the seal assembly
- 2—Clutch driving plate nut
- 3—Seal spring retainer snap ring
- 4—Spring compression sleeve Tool C-613

(5) With special spanner wrench C-545, unscrew the fluid drive bellows assembly. To help hold special wrench in place, screw retainer nut on hub (refer to fig. 61). With two pieces of wire bent to form hooks, lift out loose floating seal ring as shown in figure 60.



**Figure 60—Removing Seal Ring**

- 1—Wire hooks
- 2—Seal retainer gasket
- 3—Seal assembly
- 4—Floating seal ring

**NOTE**

*Before installing the new bellows seal, make sure that the sealing surfaces of the runner hub, floating seal ring and bellows seal are perfectly clean and free from scratches or marks of any kind. DO NOT ATTEMPT TO RECONDITION THE SEALING SURFACES, INSTEAD INSTALL NEW PARTS.*

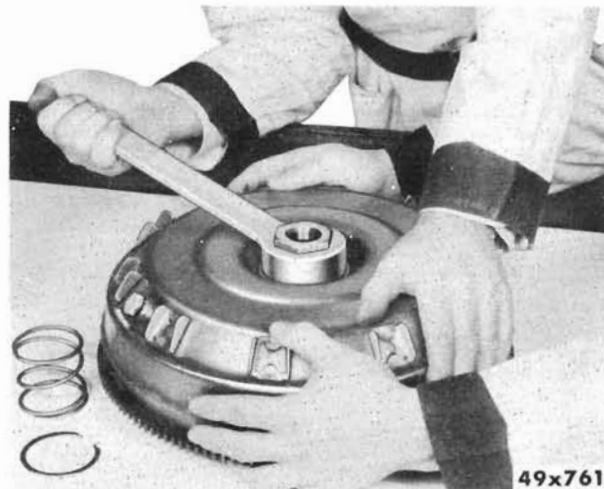
To install seal, place the floating seal ring over the hub and against sealing surface of the runner hub; screw bellows seal into place (refer to fig. 61). Be sure gasket is in place and the retainer is pulled up tight. Install damper if so equipped, seal spring and retainer, then insert the snap ring. Install driving plate, lock washer and retainer nut.

**b. Housing Type Seal Assembly.**

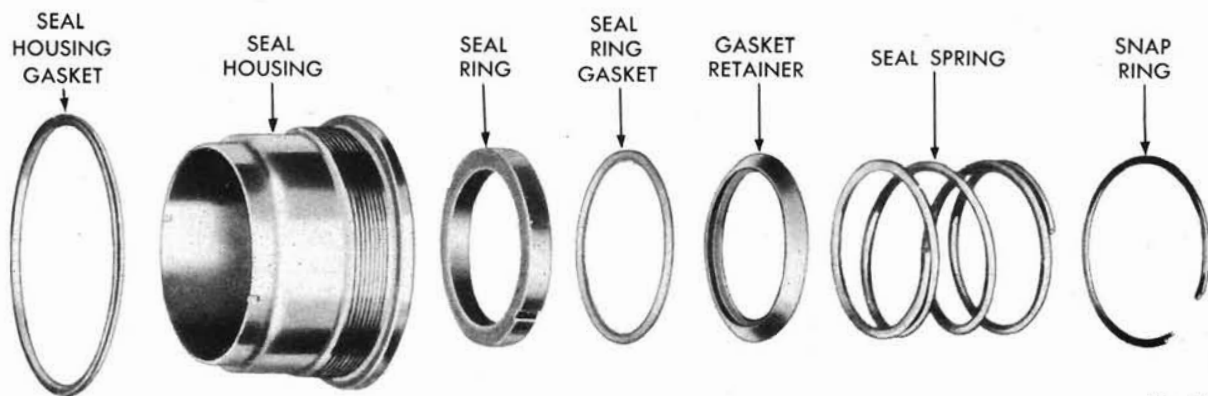
**IMPORTANT**

*It should be remembered that throughout this servicing operation, cleanliness is of utmost importance.*

- (1) Disassembly—(Coupling Removed)
  - (a) Remove filler plug and drain the unit.
  - (b) Bend back the tab on the lock washer and



**Figure 61—Removing or Installing Seal Housing**



49 x 758

Figure 62—Housing Type Seal (Exploded View)

with special socket wrench C-607, remove drive plate retainer nut (refer to fig. 57).

(c) Holding drive plate securely (refer to fig. 58), remove the drive plate with puller C-665. Remove key.

(d) Thoroughly clean back plate of fluid drive adjacent to seal housing. Cover seal housing opening with a shop towel to retain snap ring and spring as shown in figure 63. Using a screw driver, pry one end of the snap ring up and out. Remove snap ring and spring.

(e) Using special spanner wrench C-545, unscrew seal housing. To assist in holding wrench in place, screw retainer nut on hub (refer to fig. 61). The seal ring gasket and seal ring gasket retainer will come out with the seal housing. With two pieces of wire bent over to form hooks, lift out seal ring (refer to fig. 60).

**CAUTION**

*Do not attempt to remove the seal housing without first removing the snap ring and spring as this practice will destroy the seal gasket.*

(2) Preliminary to Assembly

Before installing the seal ring, make certain the

*sealing surfaces are perfectly clean and free from scratches or marks of any kind. Do not attempt to recondition these sealing surfaces. If the surface of the seal ring is damaged, install a new one. However, if the surface on the runner hub is damaged, a new fluid drive assembly will be necessary.*

Using the eraser end of a lead pencil as shown in figure 64, press a clean cloth against the seal surface while rotating the runner hub. Repeat this operation until no oil or dirt appears on the cloth. Follow this same procedure with a piece of new chamois to remove remaining lint particles.



49x762

Figure 63—Method of Retaining Snap Ring and Spring



**Figure 64—Cleaning Runner Hub Sealing Surface**

**CAUTION**

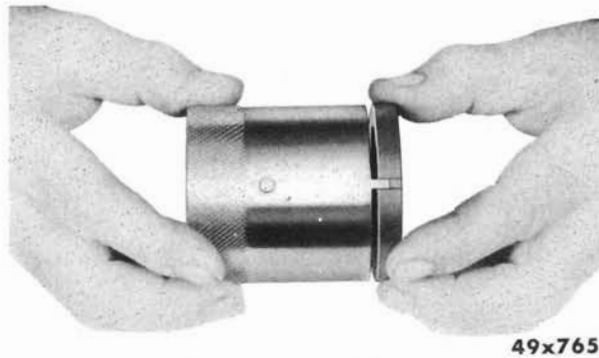
*Never use a metallic object such as a screw driver to apply cloth or chamois against runner hub seal surface as damage to the sealing surface will result.*

**(3) Assembly**

(a) First, inspect the seal housing for burrs in the spanner wrench slots, the chamfer, top edge of bore and around the snap ring groove. Carefully remove all burrs. Second, wash all parts (except gaskets and seal ring) including tools needed for assembly purposes in a cleaning solvent and dry with an air hose.



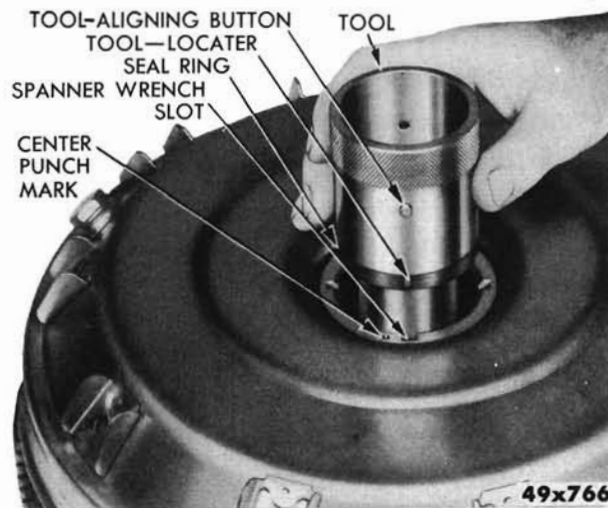
**Figure 65—Cleaning Contact Surfaces of Seal Ring**



**Figure 66—Squaring Seal Ring on Locators**

(b) Screw the seal housing in place, finger tight, so the seal housing gasket contacts both the flange of the seal housing and machined face on the back plate of the fluid drive. *Again, every precaution must be maintained to assure absolute cleanliness of the sealing surface on the runner hub and seal ring while assembling.*

(c) Wipe both sides of the seal ring by rotating each face against a clean, new chamois as shown in figure 65. Special Tool C-885 has been designed to install the seal ring and consists of two parts: SP-788 and SP-791. Using special aligning Tool SP-791, place the seal ring squarely on the locators



**Figure 67—Locating Seal Ring In Seal Housing  
 (Tool SP-791, Part of Tool C-885)**



Figure 68—Pushing Seal Ring Off Locators Using Pilot (Tool SP-788, Part of Tool C-885)

as shown in figure 66. Be careful to enter both locators at the same time. Enough tension should be maintained on the locators at all times to just hold the seal ring in place. Place aligning Tool SP-791 with seal ring installed into the seal housing as shown in figure 67. Lower the tool into the seal housing, aligning the button of the tool with the spanner wrench slot nearest the center punch mark (refer to fig. 68). Slide the pilot sleeve SP-788 gently down inside Tool SP-791 to push the seal

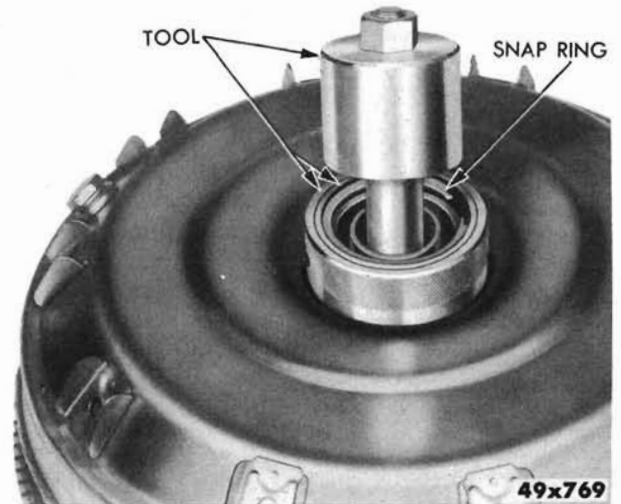


Figure 70—Tool and Snap Ring Positioned for Installing (Tool C-884)

ring off the locators and onto the two small indentions at the bottom of the seal housing (refer to fig 68).

**CAUTION**

*Do not drop pilot tool in aligning sleeve as chipping of the seal ring will result.*

(d) Remove seal ring installing tools and install seal ring gasket making certain that it is in full contact with the seal ring.

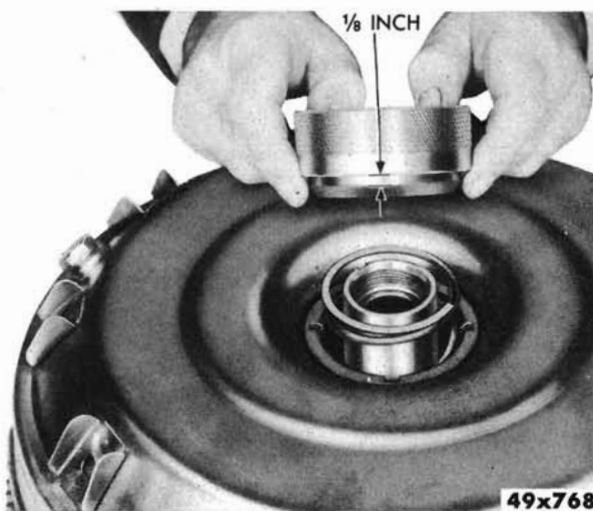


Figure 69—Positioning Inner Sleeve of Tool C-884



Figure 71—Installing Snap Ring

(e) Install seal ring gasket retainer with the angular face down. Install spring.

(f) A special Tool C-884 has been designed to compress the spring and at the same time, install the snap ring. The tool consists of three parts: SP-738, SP-740 and SP-739. Push the angular end of the inner sleeve out until approximately  $\frac{1}{8}$  inch shows as shown in figure 69. Place the angular end of the inner sleeve in the chamfer of the seal housing and push outside collar down so it seats on the face of the seal housing (refer to fig. 70). Place snap ring on top of spring and install pusher portion of Tool C-884 as shown in figure 70. The snap ring is installed by pressing quickly and heavily on the top of the tool as shown in figure 71.

(g) Tighten seal housing with spanner wrench C-545 to the required torque which is 270 foot pounds. Install drive plate, then install key.

(h) Install drive plate retainer nut and washer. With the aid of Tool C-784 as shown in figure 57, tighten nut securely with special wrench C-607. Lock retainer nut by bending edge of washer up and center punch washer at small drive plate hole.

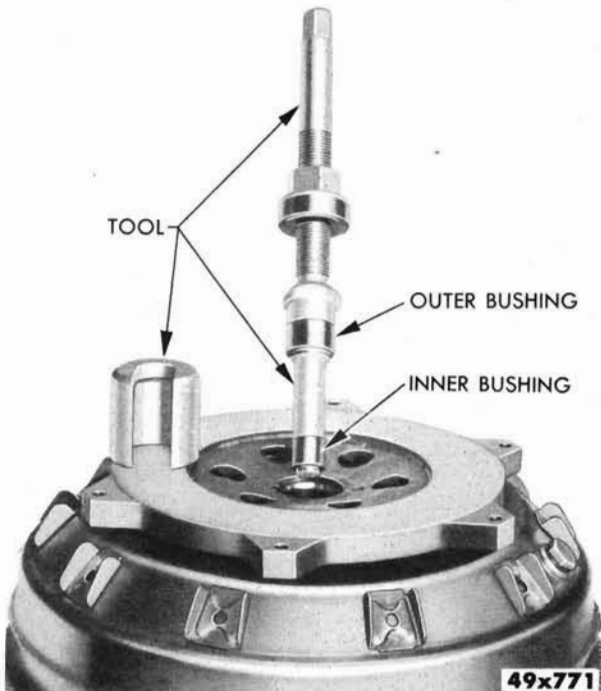
## 24. SERVICING FLUID DRIVE BUSHINGS.

### NOTE

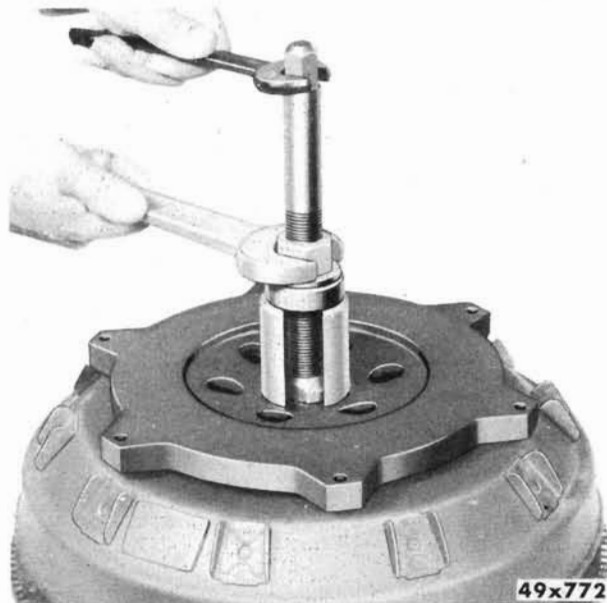
*When replacing bushings in the fluid drive unit, be sure to use only Oilite bushings.*

To remove and replace the fluid drive runner hub bushings, proceed as follows:

Place fluid drive unit on bench and remove clutch driving plate nut (do not remove plate). Now, using puller C-625, remove outer hub bushing using puller sleeve and large expansion jaw. Remove inner bushing using small expansion jaw without the sleeve. Clean all parts thoroughly. Place new inner and outer Oilite bushings on Tool C-708 as shown in figure 72 and insert in hub. Drive both bushings into the hub until they are seated. The bushings are burnished during the removal of the tool as shown in figure 73.



**Figure 72—Bushings Positioned on Tool for Installation (C-708)**



**Figure 73—Line Burnishing Bushings**

## CARBURETOR

### 25. DESCRIPTION.

Chrysler Industrial Engines are equipped with either of two types of carburetors; namely, down-draft or up-draft. These carburetors function similarly. Fuel is supplied through separate circuits in the carburetor for varying requirements of idling, part throttle operation, acceleration and wide open throttle operation.

Fuel for the idle system is admitted to the throttle body of the carburetor on the engine side of the throttle through a series of drilled passages and an idle orifice tube. The idle system supplies the major portion of the fuel at the lower engine speeds. After the throttle valve has been opened sufficiently, fuel is drawn from the nozzle of the carburetor through the main metering system.

The main metering system consists of a main metering jet, a main vent tube and passages for admitting air to the main vent tube where the fuel is mixed with air before being drawn into the throat of the carburetor. Fuel for all speed ranges above the idle range is supplied through the main discharge nozzle.

An accelerating pump supplies the additional fuel required when the throttle valve is opened for acceleration. Fuel flows into the accelerating pump cylinder through the pump inlet valve. When the accelerating pump piston is operated, the inlet valve is closed and fuel is forced out the pump cylinder through the discharge check valve and pump jet entering the carburetor to supplement the fuel supplied through the main metering system.

The economizer or step-up system provides the extra fuel necessary for maximum power under full load operation and is actuated by manifold vacuum.

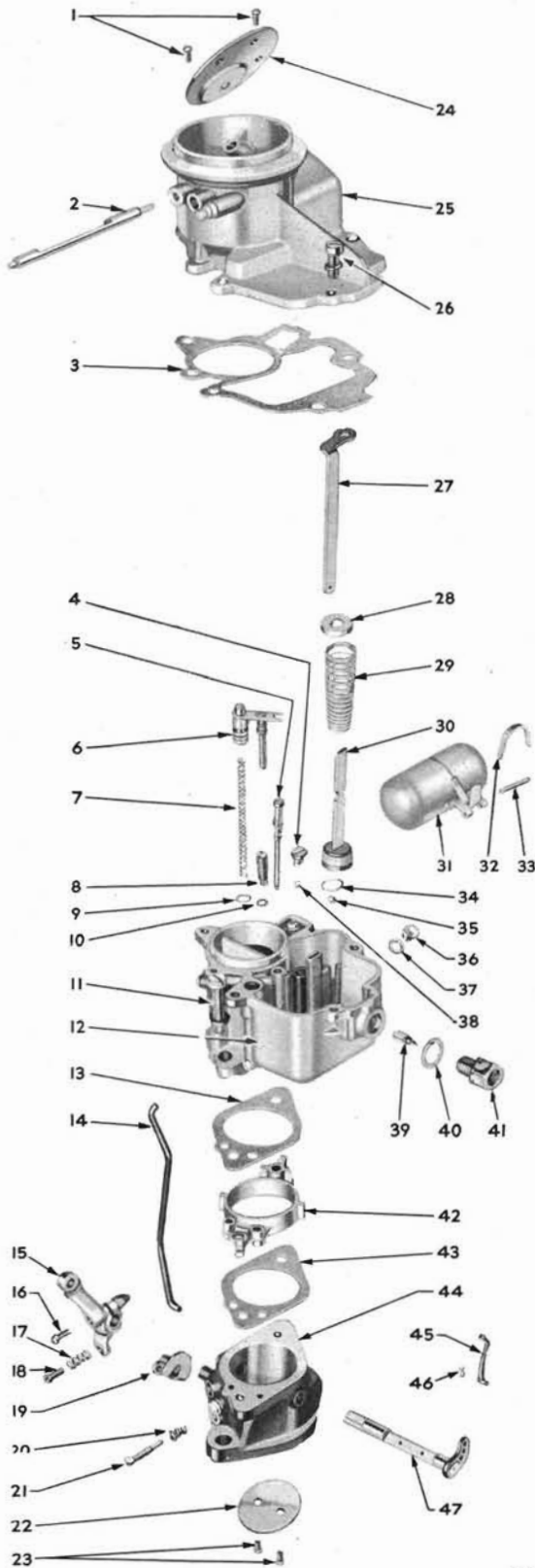
The economizer or step-up system consists of a piston, a piston actuating spring, a jet and various drilled passages required for operating this system. Vacuum created in the intake manifold (when the throttle valve is not fully opened) causes the step-up piston to overcome the tension of the step-up piston spring, thereby shutting off the step-up fuel. When the vacuum is reduced in the intake manifold, such as in wide open throttle operation, the step-up piston operates the step-up jet supplying the fuel required in addition to that supplied by the main metering and pump systems.

Fuel is supplied for all circuits through the float system which consists of a gasoline intake needle and seat assembly, float, float lever pin and float lever pin retainer. The float is set to maintain the level of fuel in the carburetor at a predetermined height. See "To Check Float Level." The float chamber vent opens into the air horn of the carburetor ahead of the choke valve. This equalizes the pressure on the fuel in the float chamber with the incoming air in the carburetor air horn, so that restrictions of the air cleaner do not affect the fuel air ratio.

### 26. TO REMOVE CARBURETOR (ALL MODELS).

- (1) Remove air cleaner and throttle control rod.
- (2) Disconnect fuel line.
- (3) Disconnect choke control.
- (4) Remove carburetor flange nuts and carburetor from engine.





Each designed carburetor requires a different method of disassembly as indicated in the following instructions:

**27. TO DISASSEMBLE CARBURETOR, CARTER DTE1, DTG1, E7T1 MODELS (REFER TO FIG. 74).**

- (1) Remove air horn attaching screws and remove the air horn.
- (2) Remove float pin retainer, float and fuel inlet needle.
- (3) Remove accelerator pump link.
- (4) Push out accelerator pump plunger assembly.
- (5) Remove the idle orifice plug and tube assembly and blow out with air.
- (6) Remove step-up piston, plate and rod assembly.
- (7) Remove main metering jet and blow out with air.

Use compressed air to clean carburetor jet. Never use drills or wire. To assemble and install, reverse the foregoing operations.

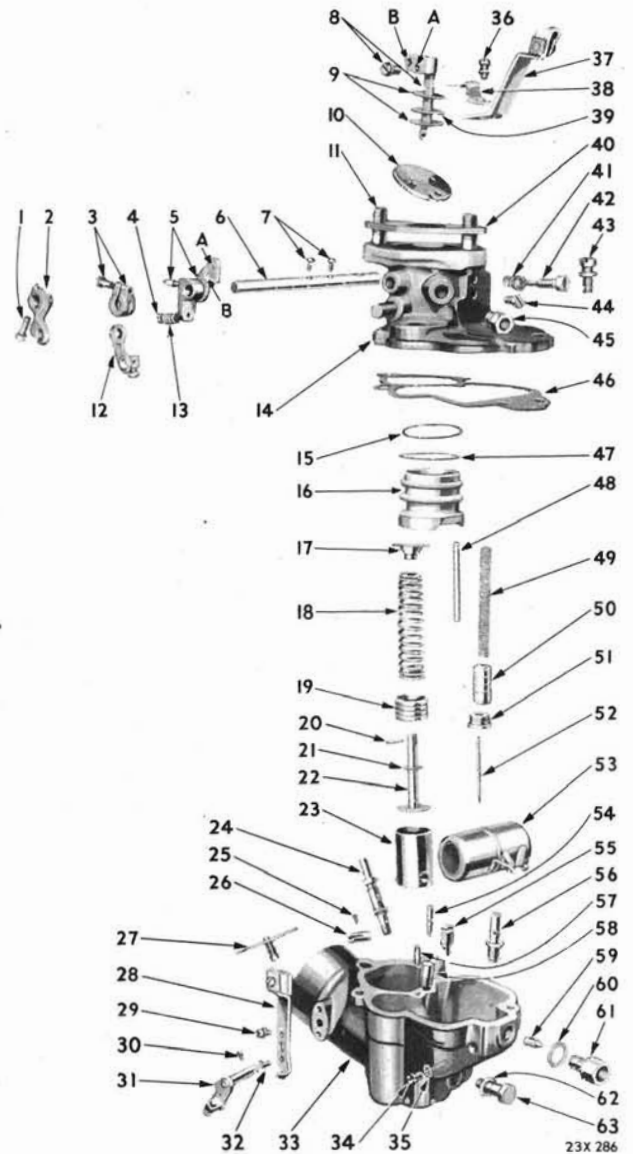
**Figure 74—Carburetor**

- |  |                                 |
|--|---------------------------------|
| 1—Valve attaching screws                 | 24—Choke valve                  |
| 2—Choke control lever and shaft          | 25—Air horn                     |
| 3—Body gasket                            | 26—Air horn attaching screw     |
| 4—Pump check plug                        | 27—Pump link                    |
| 5—Idle orifice tube and plug             | 28—Pump spring retainer         |
| 6—Step-up piston, plate and rod          | 29—Pump spring                  |
| 7—Step-up piston spring                  | 30—Plunger, spring and rod      |
| 8—Step-up jet                            | 31—Float and lever              |
| 9—Step-up piston gasket                  | 32—Float lever pin retainer     |
| 10—Step-up jet gasket                    | 33—Float lever pin              |
| 11—Flange attaching screw                | 34—Pump retainer ring           |
| 12—Body                                  | 35—Pump inlet ball              |
| 13—Flange gasket                         | 36—Main metering jet            |
| 14—Not used                              | 37—Main metering jet gasket     |
| 15—Throttle shaft lever                  | 38—Pump check ball              |
| 16—Throttle lever clamp screw            | 39—Gasoline intake needle       |
| 17—Throttle lever adjusting screw spring | 40—Needle seat gasket           |
| 18—Throttle lever adjusting screw        | 41—Needle seat                  |
| 19—Not used                              | 42—Insulator                    |
| 20—Idle adjustment screw spring          | 43—Flange gasket                |
| 21—Idle adjustment screw                 | 44—Body flange                  |
| 22—Throttle valve                        | 45—Pump filter                  |
| 23—Valve attaching screw                 | 46—Pin lock spring              |
|  | 47—Throttle valve shaft and arm |

27-25

**28. TO DISASSEMBLE CARBURETOR,  
 CARTER 6N1 UPDRAFT (REFER  
 TO FIG. 75).**

- (1) Remove screws which hold upper body and lower body.
- (2) Lift off the upper body and pump assembly.
- (3) Remove float pin retainer, float and fuel inlet needle.
- (4) Remove main metering screw, pump, check valve and economizer valve assembly (55, 56, 58 and 63).
- (5) Remove the main discharge nozzle.
- (6) Remove vent tube (57).
- (7) Remove step-up piston plug, piston and spring.
- (8) Remove idle passage tube.
- (9) Use compressed air to clean all tubes and jets. Never use a wire or drill. Remove all foreign material which may have accumulated on economizer piston or pump piston and make certain they operate freely.



**Figure 75—Carburetor (Updraft Type)**

- |  |   |   |
|--|---|---|
| 1—Throttle lever clamp screw             | 22—Pump rod plate and rod assembly            | 43—Body attaching screw and lock washer |
| 2—Throttle lever                         | 23—Pump sleeve                                | 44—Idle hole plug                       |
| 3—Throttle shaft dog and clamp screw     | 24—Nozzle and gasket                          | 45—Not used                             |
| 4—Throttle lever adjusting screw         | 25—Choke valve attaching screw                | 46—Body gasket                          |
| 5—Pump arm and lock screw                | 26—Choke stub shaft                           | 47—Venturi gasket—lower                 |
| 6—Throttle valve shaft                   | 27—Choke valve                                | 48—Idle passage tube                    |
| 7—Throttle valve attaching screws        | 28—Choke tube bracket                         | 49—Step-up piston spring                |
| 8—Pump link and screw                    | 29—Choke tube bracket attaching screw—upper   | 50—Step-up piston                       |
| 9—Pump link cover plates                 | 30—Choke valve attaching screw                | 51—Step-up piston plug                  |
| 10—Throttle valve                        | 31—Choke valve lever and shaft                | 52—Step-up push rod                     |
| 11—Carburetor to manifold stud           | 32—Choke tube bracket attaching screw—lower   | 53—Float and lever assembly             |
| 12—Throttle lever and wire clamp         | 33—Carburetor body—lower                      | 54—Idle orifice tube                    |
| 13—Throttle lever adjusting screw spring | 34—Float lever pin and plug assembly          | 55—Pump valve assembly                  |
| 14—Carburetor body—upper                 | 35—Float lever pin bushing                    | 56—Step-up valve cage and ball assembly |
| 15—Venturi gasket—upper                  | 36—Tube clamp fastening screw and lock washer | 57—Body vent tube                       |
| 16—Venturi                               | 37—Tube clamp                                 | 58—Check valve cage assembly            |
| 17—Pump collar                           | 38—Packing retainer                           | 59—Gasoline intake needle               |
| 18—Pump spring                           | 39—Felt                                       | 60—Needle seat gasket                   |
| 19—Pump piston                           | 40—Flange gasket                              | 61—Needle seat                          |
| 20—Pump collar pin                       | 41—Idle adjustment screw spring               | 62—Main metering screw gasket           |
| 21—Pump rod gasket                       | 42—Idle adjustment screw                      | 63—Main metering screw                  |
- A—Accelerating pump adjustment—long stroke (winter setting)  
 B—Accelerating pump adjustment—short stroke (summer setting)



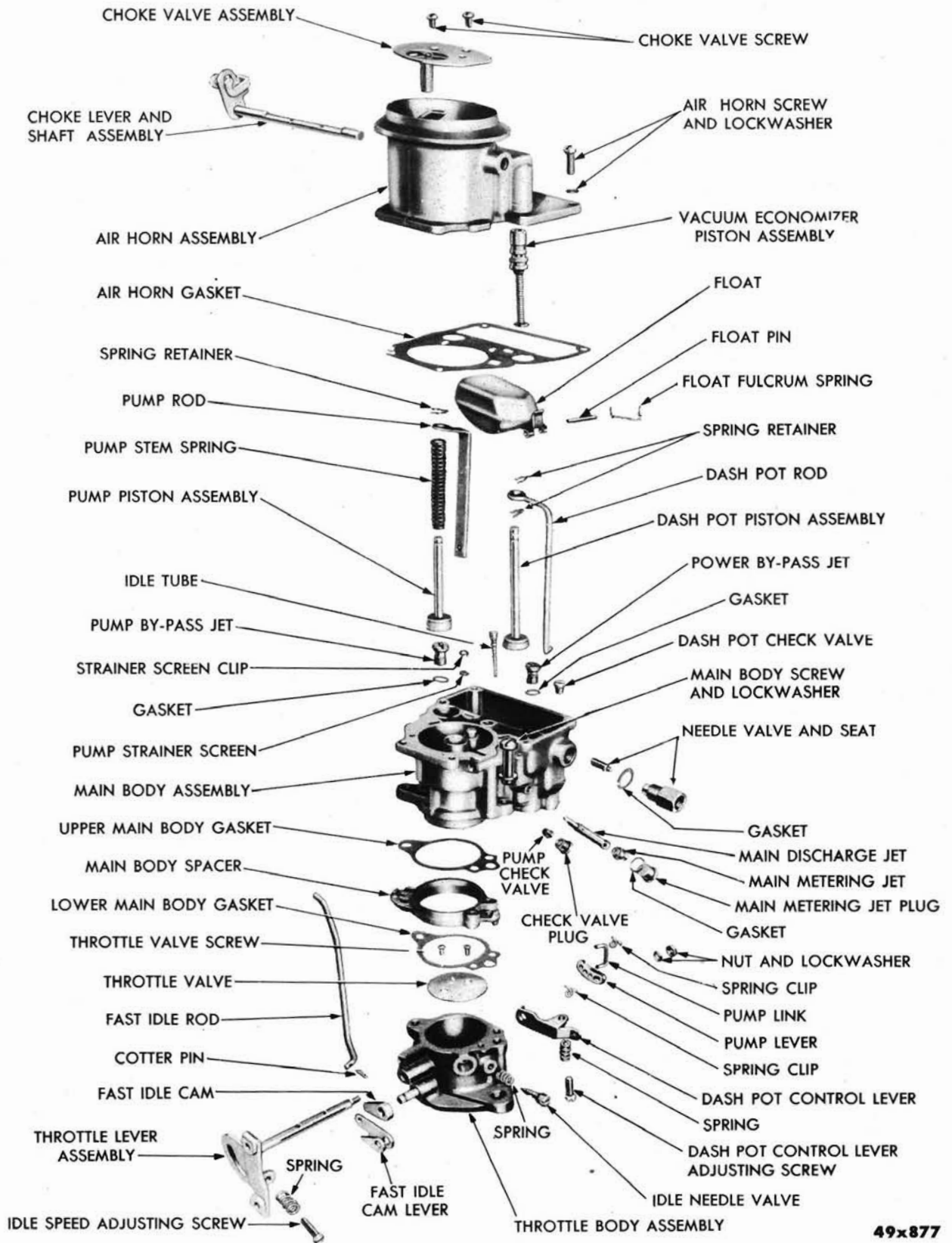


Figure 77—Carburetor (Exploded View)

Assemble by reversing the foregoing operations. The pin end of the economizer piston rod should be inserted in the economizer valve assembly.

### 29. TO DISASSEMBLE CARBURETOR WITH OR WITHOUT INTEGRAL GOVERNOR, CARTER TYPE E7D1, E7E1, E7P1 (REFER TO FIG. 76).

- (1) Remove main vent tube and plug assembly.
- (2) Remove air horn assembly.
- (3) Remove air horn to main body gasket, float, needle and seat assembly.
- (4) Remove throttle body and governor assembly.
- (5) Remove accelerator pump ball checks.
- (6) Remove accelerating pump jet.
- (7) Remove step-up jet and gasket assembly.
- (8) Remove main metering jet.
- (9) Remove idle orifice tube.

Before reassembly, clean and inspect all parts, replace where necessary. Assemble in reverse order.

### 30. TO DISASSEMBLE CARBURETOR (DASH POT) STROMBERG TYPE BXVD 3-99 (REFER TO FIG. 77).

- (1) Remove air horn.
- (2) Remove float hinge pin, float and needle.
- (3) Remove accelerator pump link and pull out accelerator pump.
- (4) Remove pump by-pass valve assembly.
- (5) Remove economizer by-pass jet.
- (6) Remove main jet plug.
- (7) Remove idle tube.
- (8) Use compressed air to blow out tubes and jets when removed. Blow through the main jet without removing it from carburetor. Never use

wire or drills to clean jets. Be sure economizer plunger works freely.

To assemble, reverse the foregoing operations.

## ADJUSTMENTS

### 31. IDLE ADJUSTMENTS.

With engine running at normal operating temperature (160° F.) and choke wide open, turn idle mixture adjusting screw counter-clockwise for richer mixture and clockwise for leaner mixture and maintain engine idle speed of 450 to 500 RPM by turning idle speed adjusting screw in direction required. Idle mixture adjusting screw should be set to the **leanest** position that will provide maximum steady engine speed. If a vacuum gauge is available, position idle mixture adjusting screw for maximum steady gauge reading.

If a satisfactory engine idle cannot be obtained by turning the idle mixture adjusting screw, check all other related engine adjustments before condemning carburetor.

### 32. ACCELERATING PUMP ADJUSTMENT (DOWNDRAFT TYPE).

Three positions are provided on the accelerating pump lever (fig. 78) in order to give a greater or lesser discharge of gasoline on quick acceleration depending upon climatic conditions.

(1) Short Stroke—(hole in pump lever nearest throttle shaft). For extremely warm weather or for high altitudes above 2,500 feet.

(2) Medium Stroke—(center hole). For normal summer temperatures.

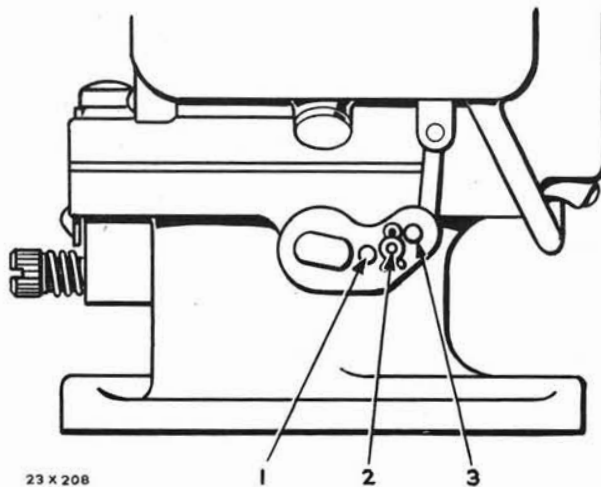


Figure 78—Accelerating Pump Lever Adjustments

- 1—Summer setting (short stroke)
- 2—Intermediate setting (medium stroke)
- 3—Winter setting (long stroke)

(3) Long Stroke—(hole in pump lever farthest from throttle shaft). For cold weather operation.

### 33. ACCELERATING PUMP ADJUSTMENT (UPDRAFT TYPE).

Two positions are provided on the accelerating pump lever for varying climatic conditions:

(1) Short stroke (hole in pump lever nearest throttle shaft). For normal summer temperature (B, fig. 75).

(2) Long stroke (hole in pump lever farthest from throttle shaft). For cold weather operation (A, fig. 75).

### 34. ACCELERATING PUMP ADJUSTMENT, CARBURETOR WITH INTEGRAL GOVERNOR.

The accelerating pump is vacuum operated. It is fully automatic and requires no adjustment.

### 35. MAIN METERING JET (ALL MODELS).

For operation at altitudes above 2,500 feet, leaner main metering jets may be used to improve fuel economy. These jets are available through the Chrysler Corporation Parts Division.

### 36. STEP-UP PISTON OR ECONOMIZER (ALL MODELS).

No adjustments are provided for the economizer or step-up circuit of the carburetor. Whenever the carburetor is disassembled, the piston and operating rods should be cleaned, to remove any foreign material that may have accumulated, to assure free operation of the piston. *Do not distort the step-up piston spring.*

### 37. TO CHECK AND ADJUST FLOAT LEVEL, BALL AND BALL DOWNDRAFT CARBURETOR.

(1) Remove float chamber cover and gasket.

(2) Hold the float needle valve in the closed position and measure the distance from the top of the float chamber (gasket removed) to the top of the float (A, fig. 80).

(3) The distance from the top of float chamber (gasket removed) to top of float (fig. 79) should be  $\frac{5}{64}$  inch and can be reset if necessary by bending lip of float lever away from needle to raise float and toward needle to lower float. Bend vertical lip of float only.

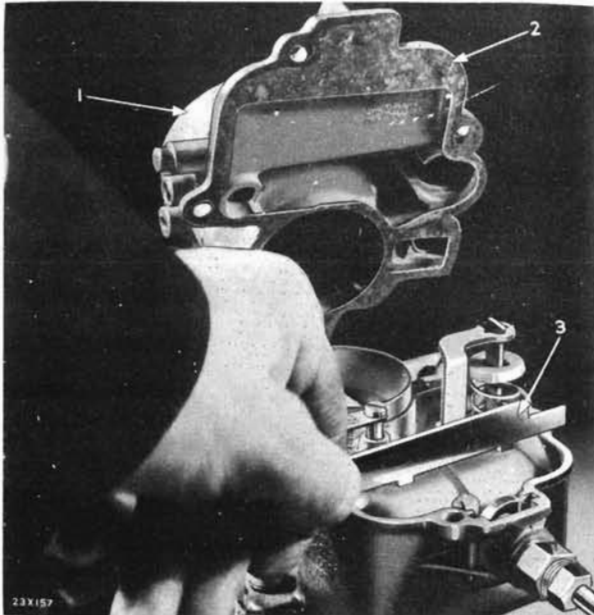


Figure 79—Checking Float Level

- 1—Carburetor air horn
- 2—Carburetor air horn gasket
- 3—Checking gauge (Tool C-449)

**38. TO CHECK AND ADJUST FLOAT LEVEL BALL AND BALL UPDRAFT CARBURETOR.**

- (1) Remove the carburetor from the engine.
- (2) Separate the float chamber from the throttle valve body.
- (3) Hold the float needle valve in the closed position and measure the distance from the top of the float chamber (gasket removed) to the top of the float (A, fig. 80).

This distance should be  $\frac{3}{64}$  inch. Adjustment of the float level can be made by bending only the vertical lip of the float lever.

**39. TO CHECK AND ADJUST FUEL LEVEL, STROMBERG CARBURETOR.**

- (1) Immediately after stopping the engine, remove the air horn and gasket.

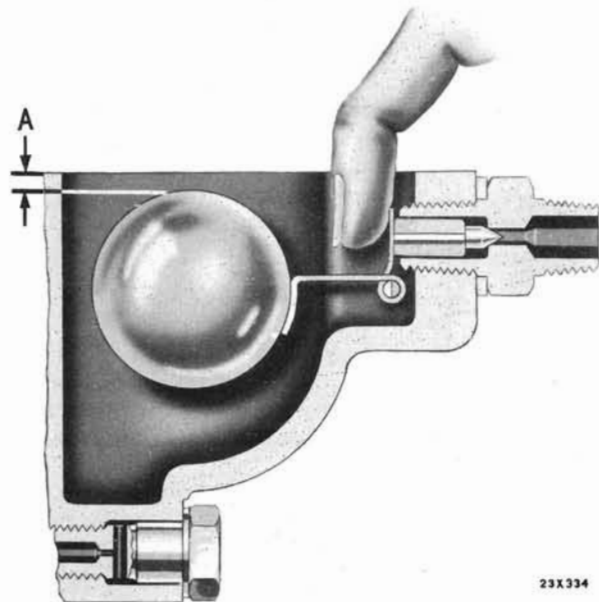


Figure 80—Checking Float Level

A—Distance from top of float to top of float chamber (gasket removed)

- (2) Measure the distance from the top of the fuel to the top of the float chamber (fig. 81). The measurement should be  $\frac{5}{8}$  inch. Care must be taken not to touch the float before taking the measurement because the fuel pump may be on the pressure stroke and force in additional fuel. Adjustment of the fuel level is to be made, if neces-

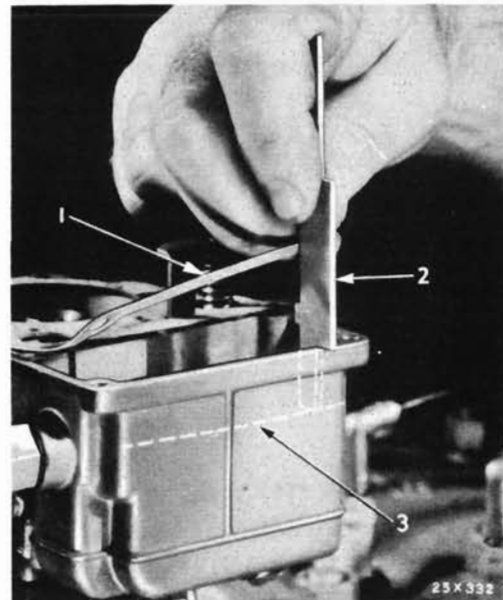


Figure 81—Checking Fuel Level

- 1—Body gasket
- 2—Checking gauge (Tool C-449)
- 3—Fuel Level

sary, by bending only the vertical lip of the float lever.

#### 40. FLUID DRIVE DASH POT.

On some engines equipped with fluid drive, the carburetor has a built-in dash pot to provide slow closing of the throttle.

The dash pot functions as follows: When the engine is under load and the throttle is open, the piston is in the upward position and the chamber is full of fuel. When the throttle is released and the linkage returns toward the idle position, the piston tends to return to the lower position. To do so, however, the fuel must be discharged through the restricted opening of the dash pot check valve (35, fig. 82) which retards the closing of the throttle and avoids a too rapid return to the idle position, which could stall the

engine. The normal travel of the dash pot should not be less than  $\frac{5}{16}$  inch or more than  $1\frac{1}{32}$  inch with all the slack taken out of linkage. Adjustment may be made by turning adjusting screw in or out to obtain this amount of travel. To check travel, place a rule as shown in figure 83. Measure from the retainer edge for the length of travel up and down moving the linkage by hand.

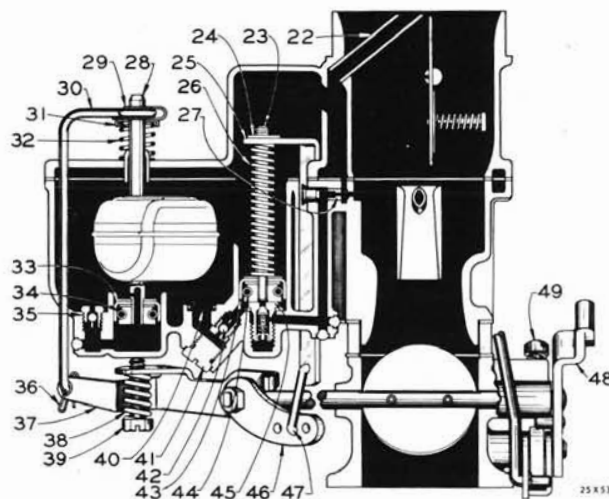


Figure 82—Carburetor Dash Pot Idle Control  
 (Engines Equipped with Fluid Drive)

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| 22—Float chamber vent                | 36—Cotter pin                      |
| 23—Pump piston stem                  | 37—Dash pot control lever          |
| 24—Cotter pin                        | 38—Adjusting screw spring          |
| 25—Pump rod                          | 39—Dash pot adjusting screw        |
| 26—Pump duration spring              | 40—Check valve strainer screen     |
| 27—Pump discharge nozzle             | 41—Check valve plug                |
| 28—Dash pot piston stem              | 42—Check valve                     |
| 29—Dash pot rod cotter pin           | 43—Pump piston leather             |
| 30—Dash pot rod                      | 44—Piston leather expanding spring |
| 31—Cup washer                        | 45—Pump by-pass jet                |
| 32—Dash pot stem spring              | 46—Pump lever                      |
| 33—Dash pot piston leather           | 47—Pump link                       |
| 34—Dash pot leather expansion spring | 48—Throttle lever                  |
| 35—Dash pot check valve              | 49—Throttle stop screw             |

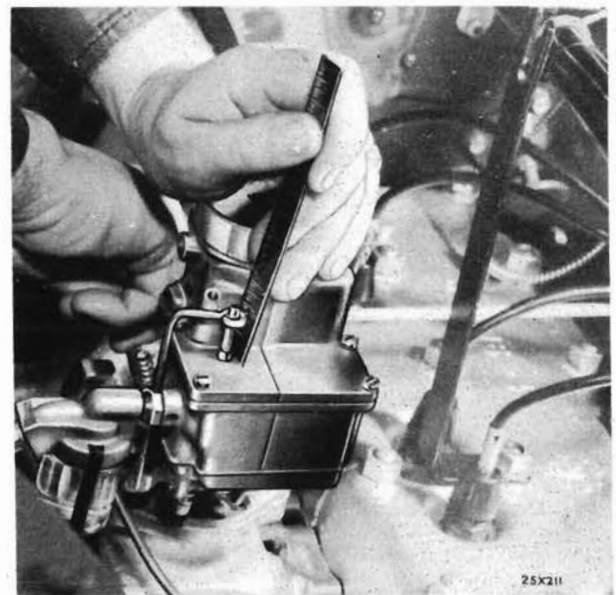
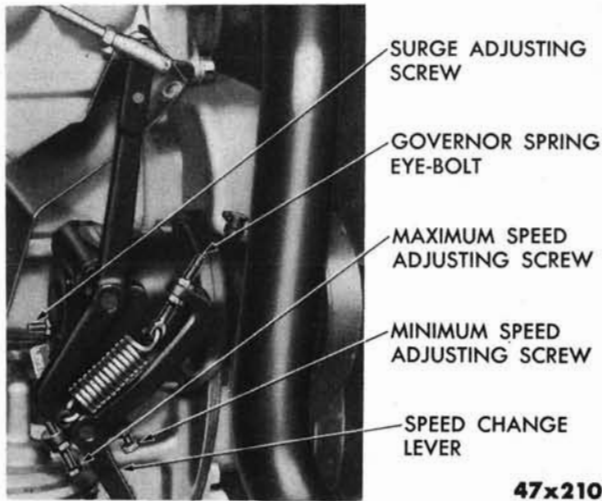


Figure 83—Measuring Dash Pot Adjustment

#### 41. DESCRIPTION OF GOVERNORS.

a. **Pierce Mechanical Governor GC-904.** Some engines are equipped with a centrifugal type belt-driven governor as shown in figure 84. Governor weights revolving with the mainshaft through centrifugal force cause the rocker shaft and operating lever to rotate. The operating lever is connected to the carburetor throttle. A calibrated spring attached to the operating lever opposes the effort exerted by the governor weights. The engine speed is governed by the balance of the two forces.





**Figure 84—Governor Adjustments  
(Pierce Governor)**

**b. Carter Internal Velocity Governor.** This velocity type governor, used on some engines, is an integral part of the carburetor. An accurately calibrated spring system attached to the throttle shaft opposes the impact and vacuum forces on the offset throttle valve. The position of the throttle valve and the maximum speed of the engine are governed by the spring adjustment. When in proper operating condition, the governor does not affect engine performance below the speed at which it begins to control and does not affect fuel consumption.

## **42. ADJUSTMENT (PIERCE GOVERNOR (FIG. 84).**

### **(1) Test Manifold Vacuum.**

Before attempting to adjust the governor, make certain no engine deficiencies exist. Run the engine until normal operating temperature is reached. The manifold vacuum must be at least 17 inches at idling speed with an allowable reduction of approximately  $3\frac{1}{2}$  inches at 5,000 feet above sea level.

### **(2) Adjust Governor Drive Belt.**

Loosen the governor mounting cap screws and move the governor away from the engine to tighten the drive belt.

### **(3) Carburetor to Governor Rod.**

The lower ball joint should be installed in the upper hole of the governor throttle lever. Screw in the low speed stop screw to hold the governor throttle lever in its open position, toward the rear of the engine. Hold the carburetor throttle lever against its wide open stop and adjust the length of the rod so that the upper ball joint will just fit into the tapped hole in the die cast throttle lever. Check the rod installation and eliminate friction or excessive free play by adjusting the ball joints.

### **(4) Adjust Governor to Eliminate Surge.**

Select an engine speed at the low point of the range at which the governor is to operate and move the speed change lever to obtain this speed. If a no-load surge is encountered at this point, turn the surge adjusting screw in  $\frac{1}{4}$  turn at a time until the surge is removed. **UNDER NO CIRCUMSTANCES SHOULD THIS SCREW BE TURNED IN FAR ENOUGH TO INCREASE THE NO-LOAD SPEED OF THE ENGINE MORE THAN 25 R.P.M.**

### **(5) Adjust Governed Speed of Engine.**

Move the speed change lever in a clockwise direction until an engine speed mid-point in the desired range is obtained. Check the regulation by loading and unloading the engine. If there is too great a variation in engine RPM between no-load and full-load speeds, increase the tension on the governor spring by adjusting the screw eye and

move the speed change lever in a counter-clockwise direction until the previously selected speed is obtained. Check results again and repeat the process until the desired regulation is obtained. Should the governor surge objectionably when the engine is under load, it will be necessary to decrease the tension on the governor spring with the screw eye and bring the engine back to the selected speed with the speed change lever. Repeat until the load surge is removed. Next, move the speed change lever in a clockwise direction until the top load is reached. Set the maximum speed adjusting screw to stop the lever travel at this point. Move the speed change lever back until the lowest speed in the range is reached and set the minimum speed adjusting screw to check the lever travel at this speed. Lock all adjustments securely with the check nuts.

### 43. ADJUSTMENT (CARTER GOVERNOR)

(Figs. 85 and 86)

(1) Warm-up Engine and Test Manifold Vacuum.

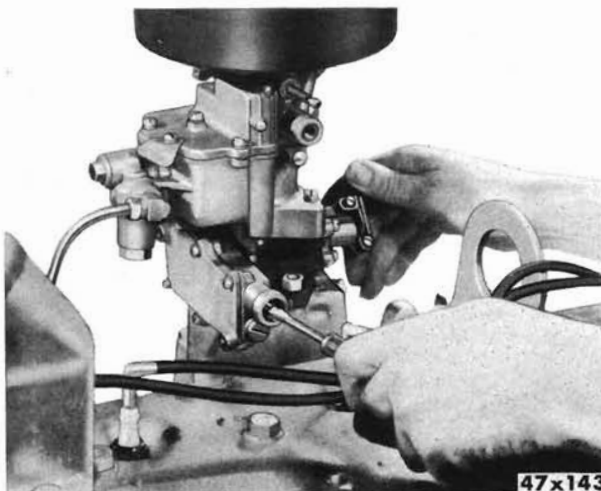


Figure 85—Adjusting Engine Governed Speed (Carter Governor)

Before attempting to adjust the governor, make certain no engine deficiencies exist. Run the engine until normal operating temperature is reached. The manifold vacuum at sea level must be at least 16 inches with engine operating at no-load (manual throttle control wide open with governor controlling engine speed) and at least 17 inches at idling speed (500 to 600 RPM) with an allowable reduction of approximately 3½ inches at 5,000 feet above sea level.

#### (2) Adjustment of Engine Speed.

Remove the large screw cap and gasket and turn the adjusting screw clockwise to decrease the engine speed and counter-clockwise to increase the engine speed.

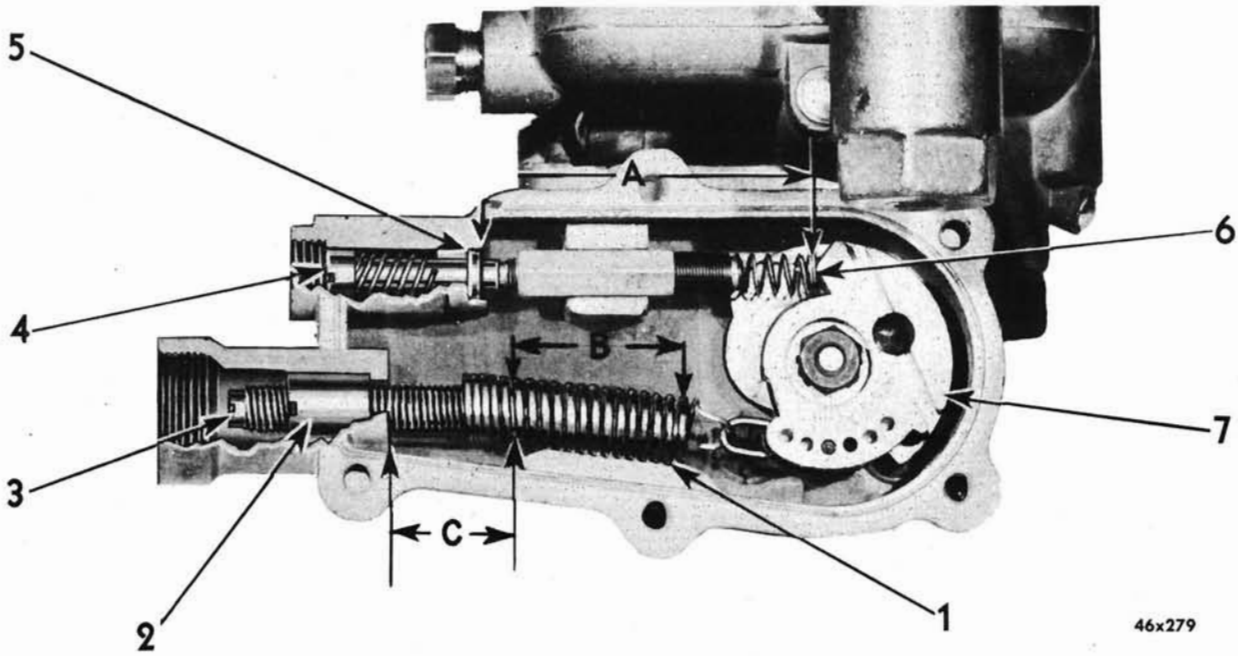
#### CAUTION

*Do not turn the adjusting screw out beyond the end of the governor housing to the extent that it will interfere with the complete tightening of the screw cap, as the primary spring may disengage from the adjusting screw if the screw is turned too far out (counter-clockwise).*

The governed speed range (no load) in revolutions per minute is shown on the chart. It is desirable to check and set the maximum governed engine speed with the aid of a reliable electric or mechanical tachometer.

| ENGINE | E7E2      | E7P1      |
|--------|-----------|-----------|
|        | Range—RPM | Range—RPM |
| 5A     | 1550—3000 | 2300—3500 |
| 6A     | 1500—2700 | 2000—3350 |
| 7A     | 1450—2850 | 2300—3200 |
| 8A     | 1500—2700 | 2250—3100 |

E7E1 was used on IND. 5, 6, 7 and 8 with an approximate range of 1200—2800 RPM.



46x279

Figure 86—Internal View of Governor  
 and Calibration Information

- 1—Primary spring
- 2—Adjusting nut assembly
- 3—Speed adjusting screw
- 4—Secondary spring adjusting screw
- 5—Secondary spring adjusting screw retainer
- 6—Secondary spring
- 7—Throttle shaft and governing lever assembly
- “A”—Dimension from front of retainer to end of secondary spring
- “B”—Number of open spring coils from end of adjusting screw thread to end of spring
- “C”—Dimension from housing boss to end of adjusting screw

#### 44. GOVERNOR CALIBRATION ADJUSTMENTS.

The governor is properly calibrated when it leaves the factory and should not require any attention, aside from a possible change in the maximum engine speed adjustment. However, if it has been tampered with or should the adjusting screw be accidentally turned out of the primary spring, recalibration will be necessary to insure

proper operation, which will require the removal of the carburetor from the engine.

#### GOVERNOR CALIBRATIONS

| Carburetor Model | Governor Unit No. | “A”                 | “B”              | “C”               |
|------------------|-------------------|---------------------|------------------|-------------------|
| E7E1             | 220-23            | 2 $\frac{3}{16}$ ”  | 14 $\frac{3}{4}$ | 1 $\frac{1}{2}$ ” |
| E7E2             | 220-29            | 2 $\frac{15}{64}$ ” | 15 $\frac{1}{4}$ | 3 $\frac{3}{8}$ ” |
| E7P1             | 220-27            | 2 $\frac{9}{64}$ ”  | 10 $\frac{1}{2}$ | 7 $\frac{1}{8}$ ” |

If recalibration is necessary, proceed as follows:

(1) Determine the governor unit number (stamped on the cover plate and also on housing on later production) and refer to the chart in conjunction with figure 86 for calibration specifications.

(2) Remove lead seal plugs from the two depressed screw openings in the governor cover plate by prying out with a small screw driver. Remove all retaining screws and cover. Never attempt to remove governing lever assembly from end of throttle valve shaft.

(3) Remove shaft housing and lever assembly located at end of throttle shaft opposite governor assembly. Before removal, be sure to note and mark position of long throttle stop screw for correct reassembly. Never immerse this part in cleaning solvent as this may cause swelling of throttle lever shaft assembly seal.

(4) Carbon or gum deposits in the throttle shaft bearing races may eventually cause friction and result in sluggish and inaccurate governor performance. Therefore, it is advisable, before proceeding with recalibration of governor, to squirt some non-corrosive solvent in the narrow space between the throttle shaft and shaft openings in the throttle bore and clean with compressed air. Do not use any solvent which might leave a gummy film. Never apply lubricating oil to throttle shaft bearings.

(5) Check fit of throttle valve in throttle bore as follows: Hold governor valve open and with long nose pliers, disconnect loop of primary spring from the governing lever link. This will allow the throttle valve to close with very little pressure

from the secondary spring and makes checking of the throttle valve fit much easier. The throttle valve must not touch the bore of the carburetor flange when in any position except when completely closed. Check the centering of the valve by holding the flange up to a light, closing the valve tightly and looking through the bore. The valve should touch the bore at the idle part and also the point opposite to it. The sides of the valve near the throttle shaft should not touch the bore and approximately the same clearance should be visible on both sides. If throttle valve is not properly aligned, loosen the two attaching screws, then with the valve in closed position, rotate and shift valve with the fingers to obtain proper alignment. Tighten the two screws. Connect primary spring to governing lever link. Do not tap throttle valve or throttle shaft when refitting valve.

(6) Remove secondary adjusting screw plug and gasket assembly and check "A" dimension of secondary adjusting screw and spring assembly. Open throttle to make sure that the secondary spring is not in contact with governing lever. Turn secondary screw clockwise to decrease dimension and counter-clockwise to increase dimension. Secondary spring assembly may be removed for replacement by removing retainer while pressing lightly on head of secondary adjusting screw, then backing out screw.

Upon reassembling, be sure that retainer is installed in proper slot and not against thread (see fig. 86) and that secondary spring compresses without buckling as throttle valve is closed. If spring buckles, remove secondary spring assembly and revolve entire spring assembly 1/6 turn and

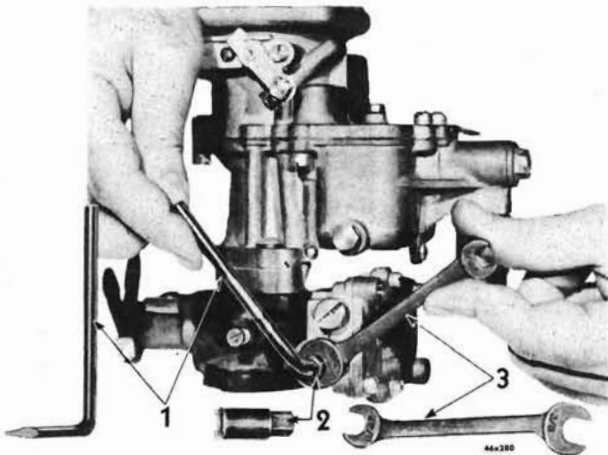
reinstall. If necessary, repeat until buckling condition no longer exists. Never remove secondary spring from its holder since this will damage spring.

(7) Check "C" dimension (throttle valve closed). This controls the primary spring tension. (First, make sure that the adjusting nut is pressed all the way into casting by tapping with Tool T109-185.) Refer to figure 87.

Correct "C" dimension if necessary by turning the primary adjusting screw, clockwise to increase dimension, counter-clockwise to decrease dimension.

(8) Check "B" specification. This is the number of active coils. In order that the number of active coils may easily be counted, hold the throttle valve closed to separate the coils. In counting the number of active coils in the primary spring, start at the first complete coil from the loop end. The active coils end at the entering edge of the primary adjustment screw thread.

If the number of active coils is within one coil of "B" specification, it may be considered satisfactory.



**Figure 87—Adjustment of "C" Dimension  
 Tool Set DD-928**

If the number of active coils is not within one coil of "B" specification, indications are that the spring has been tampered with and recalibration with the adjusting nut is necessary. To do this, proceed as follows:

Set the amount of active coils ("B" specification) with the adjusting screw.

Where a fractional number of coils is required, first adjust to the nearest whole number of coils as described above. Then, add or subtract the fractional coil by turning the primary adjusting screw the same fraction of a turn. As an example—if  $14\frac{3}{4}$  coils are called for in "B" specification, adjust to obtain exactly 15 active coils. Then turn primary adjusting screw  $\frac{1}{4}$  turn or 90 degrees clockwise, thereby reducing the number of active coils to  $14\frac{3}{4}$ .

Should the end coil of the primary spring contact the governor housing, or if the primary adjusting screw is turned in so far that the slotted end becomes flush with the adjusting nut assembly before the correct amount of coils is obtained, it will be necessary to adjust the nut. Hold the primary adjusting screw with screw driver so that it cannot turn while turning the adjusting nut with Tool T109-185.

(9) Once the correct number of active coils has been established with the adjusting screw, set "C" dimension.

To do this, hold the primary adjusting screw with screw driver so that it cannot turn, while turning the adjusting nut with Tool T109-185. Turn clockwise to decrease "C" dimension, counter-clockwise to increase the dimension. When dimension is correct, tap end of wrench with a

light hammer to seat adjusting nut, as adjusting nut must be firmly seated, then recheck dimension.

(10) To replace damaged primary adjusting screw or nut, hold throttle valve open, unhook the primary spring from the link and using a narrow screw driver, turn the primary adjusting screw clockwise until it is out of adjusting nut. Place fiber drift inside governor housing, against adjusting nut and drive out nut. To reassemble primary adjusting screw and adjusting nut assembly, proceed as follows:

Install primary adjusting nut, driving nut against seat in housing with Tool T109-185 (always use new part to make certain of tight fit). Start primary adjusting screw in adjusting nut from inside of housing, then turn screw counter-clockwise with narrow screw driver until all but a few threads have engaged the nut. Screw will be a tight fit as it will be cutting new threads in adjusting nut fiber insert.

Insert tail of primary spring in slot in governor housing, bring against entering edge of adjusting screw and turn screw clockwise until a few coils have been engaged. Hook spring to governing lever link.

(11) Inspect throttle shaft pick up dog for wear. If replacing dog, install in proper relation to throttle valve. If dog is tight, do not hammer or tap in place. Draw into place with screw and lock washer.

#### CAUTION

*Excessive tightening may shear screw.*

Before installing same or new shaft housing and lever assembly, be sure that throttle lever assembly is snug against the shoulder of the flat on the shaft (stub).

Holding throttle valve closed and throttle lever assembly in open position, install shaft housing and lever assembly and gasket with throttle stop screw in previously marked position.

(12) Install governor housing cover and gasket.

While supporting governor housing over edge of bench, place lead shot (part 103-11) in the two depressed screw openings. Tamp into place and stamp with identifying tool. Install adjusting screw plug assemblies.

(13) Install carburetor and governor assembly on engine. Warm up engine. Hook up tachometer and check governed no load speed. Set with primary adjusting screw to required RPM.

If the engine surges under heavy load with the governor controlling engine speed, turn the speed adjusting screw clockwise,  $\frac{1}{2}$  turn at a time, and correct maximum governed speed by turning the adjusting nut clockwise. Repeat if necessary until the surge is eliminated.

Should engine surge (continued rapid rise and fall of engine speed) at governed engine speed (no load) transmission in neutral, turn secondary adjusting screw counter-clockwise  $\frac{1}{2}$  turn at a time until surge is just eliminated. If this adjustment increases the maximum governed engine speed, reduce same by turning the primary adjusting screw clockwise until maximum governed engine speed is re-established.

(14) When final adjustments are completed, install adjusting screw plug assemblies. Seal by threading wire through plug and hole in boss in governor housing and crimp lead seal with identifying tool. Both adjustments must be sealed with wire and lead seal.

**45. MANIFOLD HEAT CONTROL VALVE.**

There are two types of manifold heat control valves. Some engines are equipped with an automatic heat control valve (fig. 88), which regulates the amount of heat that by-passes around the inlet manifold heater body. An occasional check should be made to insure that the valve is free and not restricted in its operation. If worn or damaged, the assembly should be replaced. The thermostat spring attached to the valve shaft in the manifold should be replaced when it becomes weak.

Other Industrial (Chrysler 6-Cylinder) Engines are equipped with the adjustable type heat valve as shown in figure 88A. This type valve requires adjusting for summer and winter or where weather conditions change. The proper setting for this adjusting valve is with the end of the slot marked "winter" at the locking pin (which carries the control plate locking nut) for winter or cold weather, as this deflects more heat from the mani-

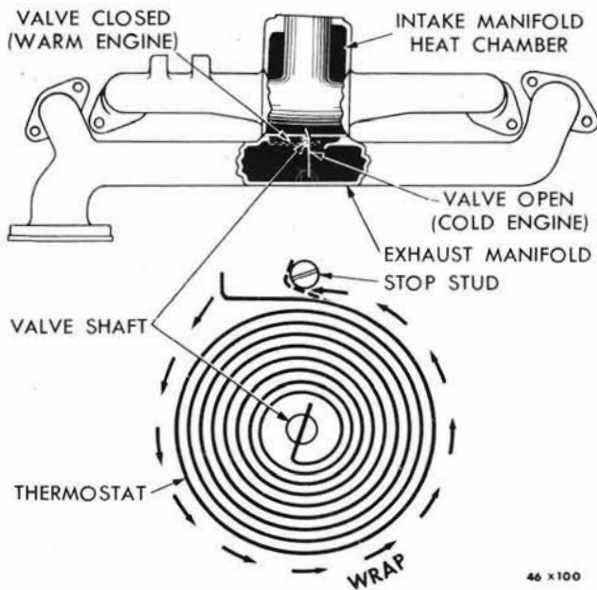


Figure 88—Diagram Showing Thermostat Wrap

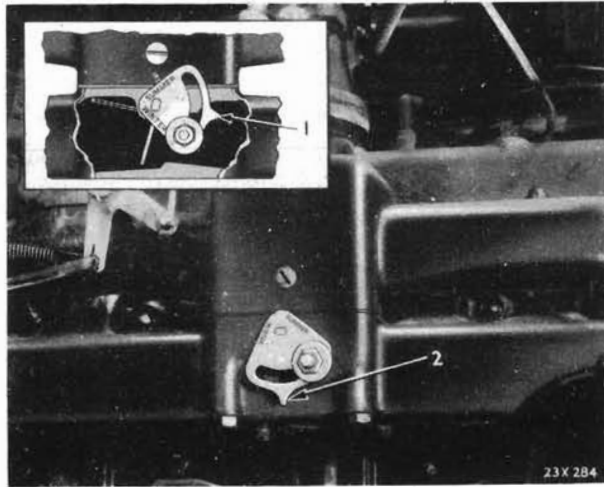


Figure 88A—Seasonal Manifold Heat Control

1—Winter position  
2—Summer position

fold exhaust against the intake heater body. The correct summer setting is with the end of the slot marked "summer" at the locking pin. When the heat control valve is adjusted properly, it will help to save fuel and assure proper fuel mixture and even heat to intake manifold heater body.

**46. COOLING SYSTEM.**

**a. Description.** The centrifugal type water pump (figs. 89 and 90) is belt-driven from a pulley on the crankshaft. The same belt also drives the generator and fan. The water pump circulates

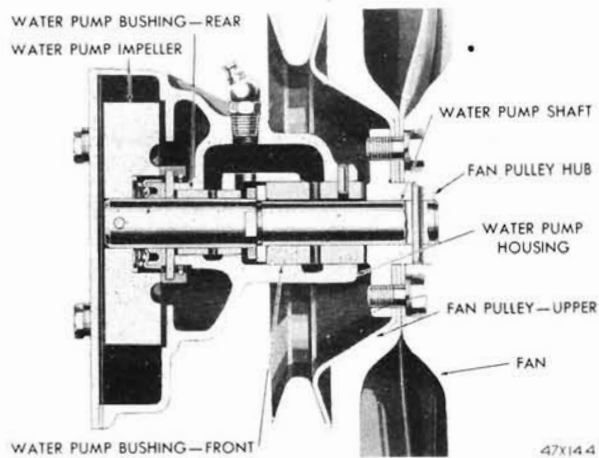


Figure 89—Water Pump (Bushing Type)

water through water jackets which extend the full length of the cylinder bores. A water distributor tube directs the flow of water onto the exhaust valve ports to help maintain an even temperature in the cylinder block. A thermostat with a rubber gasket is assembled as a complete unit into the cylinder head water outlet. It automatically controls the circulation of the cooling solution. The thermostat starts to open at 157° F. to 162° F. and is fully open at 183° F.

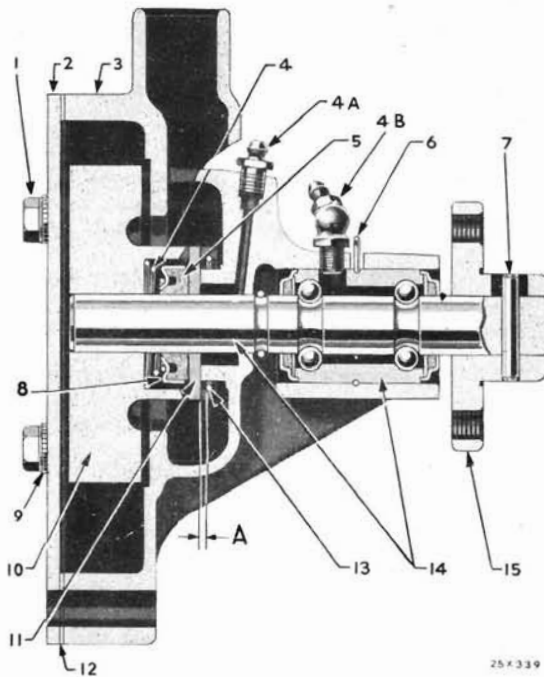


Figure 90—Water Pump (Ball Bearing Type)

- 1—Body cover plate screw
- 2—Body cover plate
- 3—Body
- 4—Seal thrust spring
- 4A—Seal lubricant nipple
- 4B—Bearing lubricant nipple
- 5—Seal
- 6—Shaft bearing lock ring
- 7—Fan pulley hub pin
- 8—Seal retainer
- 9—Body cover plate screw lock washer
- 10—Impeller
- 11—Seal retainer
- 12—Body cover plate gasket
- 13—Seal retainer washer lock ring
- 14—Shaft and bearing
- 15—Fan pulley hub
- A—Minimum dimension (3/32")

**b. Thermostat.** The thermostat has four by-pass openings. When installing the thermostat, position it so that the thin bridges which divide the openings, face to the front and rear of engine (fig. 91). The thermostat cannot be repaired; if it fails to operate properly, replace the unit.

**c. Fan Belt** (fig. 92). To adjust the fan belt, loosen the generator pivot bracket bolts and the adjustment locking bolt. Pull the generator out until there is 1/2 inch deflection in the belt midway between the fan pulley and the generator pulley. Hold the generator in this position and tighten the adjustment locking bolt and pivot bolts.

**d. Cylinder Block Water Distributor Tube.** The water distributor tube directs the flow of water from the water pump against the exhaust valve ports which are the hottest spots in the engine. The tube is located between the cylinders and the

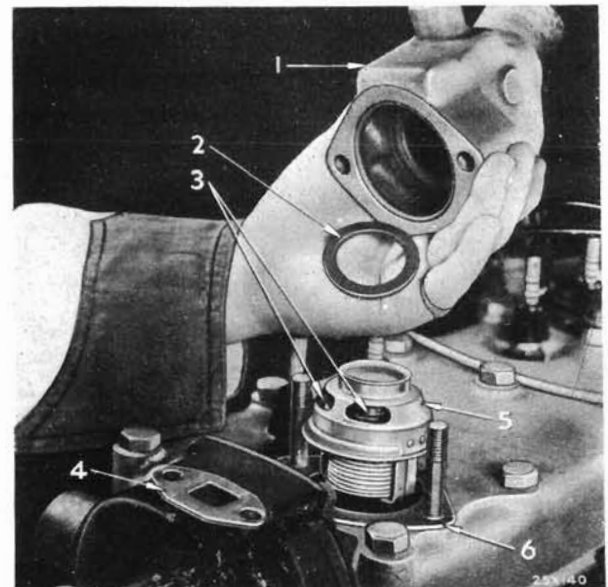
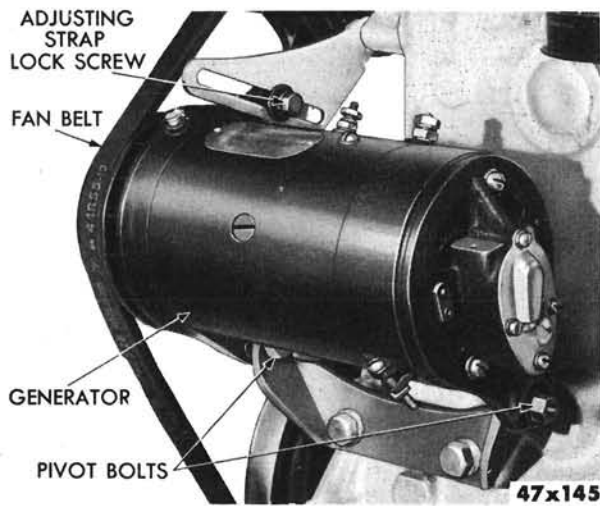


Figure 91—Installing Thermostat

- 1—Cylinder water outlet elbow, water pump by-pass elbow and hose
- 2—Thermostat gasket
- 3—Thermostat openings
- 4—Water pump by-pass elbow gasket
- 5—Thermostat
- 6—Cylinder water outlet elbow gasket



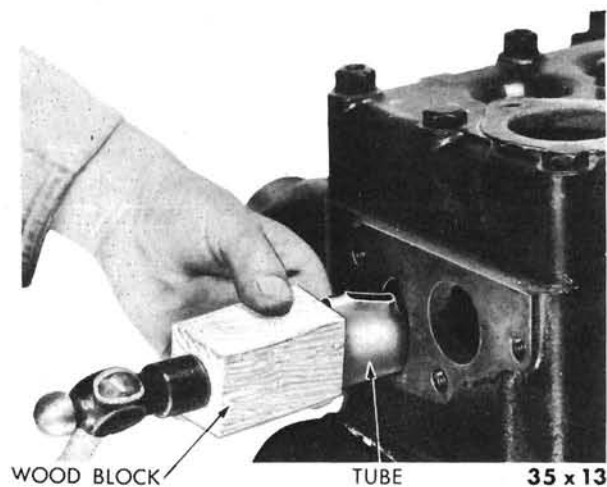


**Figure 92—Fan Belt Adjustment**

valve ports near the top of the cylinder block. Replacement of this tube requires removal of the water pump. See figure 93.

The tube should be replaced whenever the engine is completely overhauled. If the tube becomes rusted or corroded, overheating of the engine will occur due to failure of the water to circulate properly through the cylinder block.

**e. Draining and Filling the Cooling System.** To drain cooling system completely, open radiator drain cock and also drain cock at lower edge of

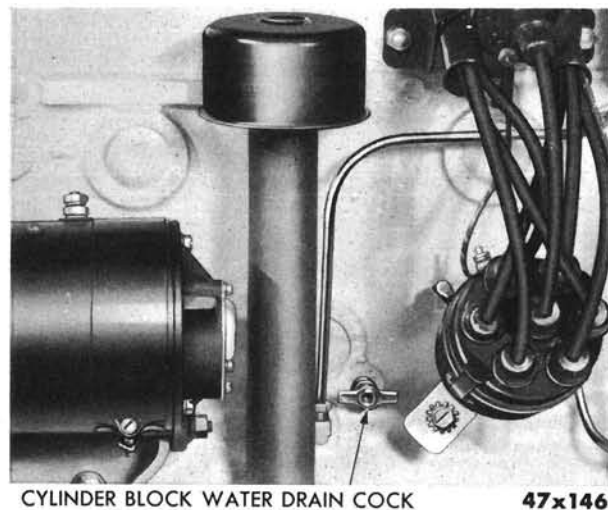


**Figure 93—Installing Cylinder Block Water Distributor Tube**

1—Tube      2—Hook

water jacket on left side of engine to drain all water from cylinder block. See figure 94. If the cylinder block drain does not flow freely, remove the cock and clean the hole in the cylinder block and also in the cock by probing with a wire or nail to loosen the sludge. Be sure to remove radiator cap.

When filling the cooling system in summer, use clean water with rust resistor (refer to par. h). In winter, use clean water and anti-freeze with a freezing point below prevailing or anticipated minimum temperatures. Fill the cooling system so the liquid level is approximately  $1\frac{1}{4}$  inches below the bottom of the filler neck. Recheck the level of the liquid in the radiator after the engine has reached normal operating temperature. By not filling the radiator completely, enough space is left so that subsequent expansion under heat will not raise the fluid level to the overflow pipe. This is important in winter to prevent loss of anti-freeze through the overflow pipe. Do not use a high temperature thermostat with an alcohol type of anti-freeze.



**Figure 94—Cylinder Block Drain Cock**

**CAUTION**

*Never add cold water or anti-freeze to an overheated engine when level of cooling medium is low. The introduction of cold liquid will cause sudden contraction of overheated metal, resulting in cracks or fractures of cylinder head or block. When in doubt, allow engine to cool.*

**f. Cleaning Cooling System.** Should the cooling system become obstructed because of internal deposits, it is advisable to use a cleaner to remove the accumulations that cause a loss in cooling efficiency.

MOPAR Cooling System Cleaner is obtainable from the Chrysler Motor Parts Corporation Parts Plants and Depots, is a concentrated composition designed to remove rust, sludge and other foreign matter, without injury to the cooling system. Removal of such foreign matter restores cooling efficiency and avoids overheating.

**g. Flushing the Cooling System.**

- (1) Open radiator drain cock.
- (2) Remove water hose from radiator inlet (top.)
- (3) Remove cylinder head water outlet elbow from cylinder head and take out thermostat. Plug by-pass elbow with a cork and install elbow without the by-pass hose.
- (4) Remove water hose from radiator outlet (bottom).
- (5) Apply a suitable hose or attach flushing gun to hose on engine water outlet elbow at the top of the cylinder head.
- (6) Turn on water supply and force the water

downward through the cylinder block until the water jacket is cleaned. A pulsating flow of water will loosen sediment quicker than a steady flow.

(7) Remove hose and install on radiator outlet elbow (bottom of radiator) and force water upward through the radiator until cleaned. When pressure flushing cooling system, care should be taken not to apply excessive pressure to system because of damaging radiator. Before applying any pressure, make certain that there is a clear open outlet for incoming water.

(8) Assemble thermostat and hose to engine and radiator, taking care to remove the cork or plug from by-pass elbow.

(9) Inspect for water leaks at connections after filling with water or anti-freeze solution.

**h. Radiator Rust Resistor.** MOPAR Rust Resistor, when added to water in cooling system, prevents formation of scale and rust and also is a safeguard against electrolytic corrosion which could take place where dissimilar metals are used, such as in the radiator core. Scale or rust tends to obstruct flow through passages of both block and radiator, and when such formation is excessive, can cause overheating. This, in turn, causes loss in lubricating efficiency and accumulation of carbon, varnish and gums.

One pint of MOPAR Rust Resistor is sufficient for the cooling system. When once put in, no further additions are necessary except when the system is drained or flushed. Do not add rust resistor to anti-freeze solutions which already contain a rust resistor. Rust resistor does not remove or dissolve rust; it is a preventive only and not a cleaner.

**i. Anti-Freeze Solution Protects the Cooling System.** There are several commercial liquids available which may be used to prepare anti-freeze solutions that are satisfactory for the cooling system. The manufacturers of the different brands of anti-freeze issue charts showing the proper amount of anti-freeze to use with a given amount of water for protection against freezing at various temperature ranges.

To facilitate accurate testing of the freeze points of these anti-freeze solutions, the rules below should be followed:

(1) Mix the water and anti-freeze solution thoroughly to a normal operating temperature in the system.

(2) Do not mix different basic types of anti-freeze solutions.

(3) Use a good quality hydrometer calibrated or designed for the particular brand of anti-freeze in use.

The alcohol anti-freeze solutions are subject to evaporation, especially on heavy runs. If this type of anti-freeze solution is used, it should be tested frequently and the necessary quantity of anti-freeze added to protect the cooling system for the lowest anticipated temperature.

Permanent type anti-freeze solutions rarely lose their protection strength through evaporation. If loss of solution occurs, look for leaks in the cooling system. When using water for refilling a cooling system charged with this solution, care must be taken not to overfill with water (above the proper level), for this might weaken the solution and raise its freezing point.

It is recommended that the entire cooling system be cleaned and the hose connections and cylinder head tightened before putting in the anti-freeze solution.

Solutions containing salt, calcium chloride, soda, sugar or mineral oils, such as kerosene or engine oil should NEVER be used in the cooling system, as they will either clog the water passages or damage the hose connections and other parts.

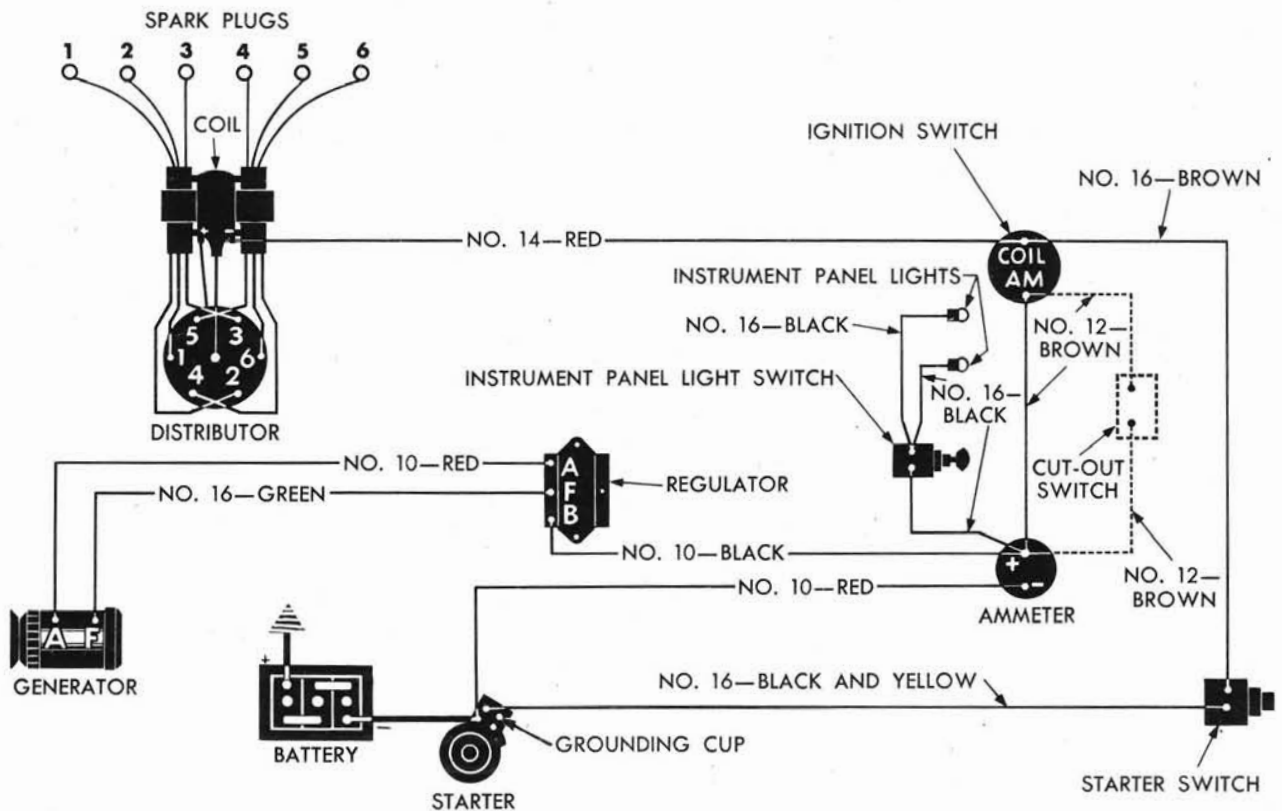
**j. Cooling System Capacity.** The cooling system capacity of IND. 5, 5A, 6, 6A, 7, 7A, 8 and 8A Chrysler Industrial engines where the radiator is supplied by the Chrysler Corporation, is 6 gallons. Where a special type radiator is required, the manufacturer will supply information concerning the capacity.

## 47. ELECTRICAL SYSTEM.

### a. Starter.

**DESCRIPTION.** The starter (see illustration in Parts Book Supplement) is mounted to the clutch housing and engages the starter ring gear on the engine flywheel. Battery current is applied to the starter through a switch mounted on the frame of the starter.

**INSPECTION.** To inspect the starter brushes, remove the head band, raise the brush springs and lift the brushes from the holder. If the brushes are worn more than half their original length, scored or oil soaked, replace them. If the armature commutator is scored, burned or excessively worn, the starter should be removed for necessary repairs.



47x298

Figure 95—Electrical Wiring Diagram

**b. Generator**

**DESCRIPTION.** The generator (see illustration in Parts Book Supplement) is belt driven; the armature shaft is carried by a ball bearing at the front and a plain bushing at the rear. The output of all generators (except model GBM-4610) is controlled by a regulator which contains three units; namely, the circuit breaker, current regulator and the voltage regulator. Model GBM-4610 charging rate is controlled by third brush regulation.

**INSPECTION.** To inspect the generator brushes, remove the head band, raise brush springs and lift the brushes from the holders. If brushes are worn to less than half their original length, or oil soaked, replace them. If the armature commutator is scored, burned or excessively worn, the

generator should be removed for necessary repairs.

**GENERATOR REGULATOR.** The regulator assembly is sealed to indicate that it has the original factory setting. It also prevents disassembly of the unit except by mechanics authorized to adjust or repair it, because precision gauges and meters are required to make accurate adjustments and repairs to the regulator. Do not attempt to adjust the regulator unless the necessary equipment is available.

**c. Battery.**

**INSPECTION.** Inspect the battery after each 50 hours of operation. Add distilled water or water that is colorless, odorless, tasteless and suitable for drinking to keep the electrolyte level (battery fluid)  $\frac{3}{8}$  inch above the tops of the battery plates. Keep the battery terminals and battery posts clean.

**CAUTION: Explosive Gases**

*Never allow a flame or spark near the battery. By the nature of the chemical reactions which take place in a battery, a mixture of hydrogen and free oxygen is produced when the battery is charging. This mixture is explosive in nearly any proportion. If it is necessary to use a flame near the battery, first remove the caps and blow out the chambers gently enough to avoid splashing the acid.*

**HYDROMETER READING.** Test the electrolyte solutions with a hydrometer. The following hydrometer readings show the charged condition of the battery at normal operating temperature (80°):

|                    |                |
|--------------------|----------------|
| Fully Charged..... | 1.275 to 1.300 |
| Half Charged.....  | 1.225          |
| Very Low.....      | 1.150          |

**TEMPERATURE AT WHICH BATTERY WILL FREEZE.** A battery with a specific gravity of 1.260 to 1.300 will not freeze except in temperatures below -75° F., but a discharged battery with specific gravity of 1.100 to 1.120 will freeze at 14° F. to 18° F. above zero. For this reason, the battery should be kept fully charged when temperatures fall below +32° F.

**SPECIFIC GRAVITY FOR HOT CLIMATES.** In hot climates (95° F. and above) lower specific gravity electrolyte is recommended to avoid excessive deterioration of plates and separators. To lower the specific gravity of a fully charged battery, remove the electrolyte from a depth of  $\frac{3}{8}$  inch above the plates to the level of the plates. Add distilled water, or water that is colorless, tasteless and suitable for drinking, to bring the battery fluid up to  $\frac{3}{8}$  inch above the plates. A fully charged

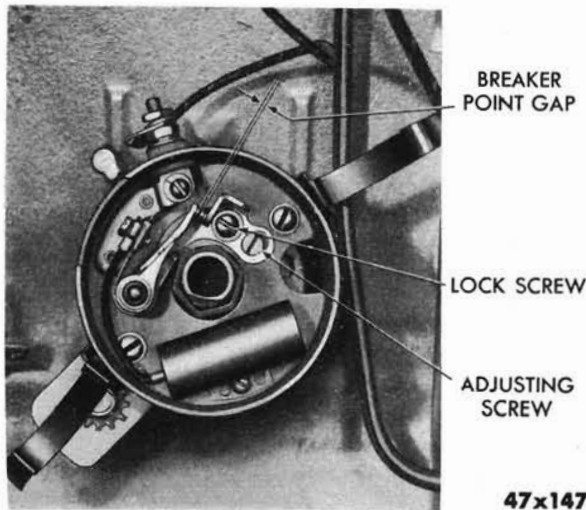
battery with this electrolyte should have a specific gravity of 1.245.

**d. Ignition System.**

**DESCRIPTION.** The ignition distributor (see illustration in Parts Book Supplement) is mounted on the left side of the engine and is driven by a drive shaft which engages the oil pump shaft. The distributor accurately times and distributes the ignition current. A set of breaker points located in the base of the distributor times the ignition by making and breaking the primary circuit at the correct time. A rotor in the distributor cap distributes the high tension current, built up by the ignition coil to the spark plugs as the pistons reach the top of their compression stroke. An automatic governor built into the case of the distributor provides automatic advance of the ignition timing, as the engine speed is increased. Some distributors have a metal disc cap over the breaker points and cam. This plate can be lifted off after removing the rotor. Some engines are equipped with a distributor having a tachometer drive pinion.

**DISTRIBUTOR BREAKER POINTS** (fig 96). The distributor breaker points are adjustable. Before adjusting the points, however, examine them for corrosion or pitting. If either condition exists, dress the points down to insure a clean square contact, or install new points. Rotate the distributor shaft until the breaker point rubbing block is on a high point of the cam and adjust the breaker point gap to .018 to .020 inch.

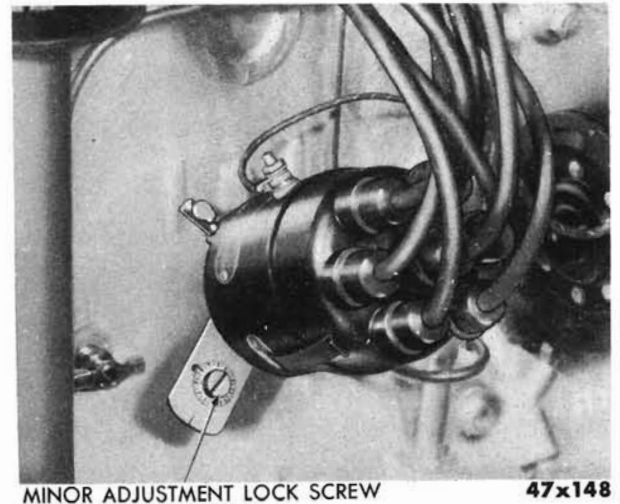
**SPARK PLUGS.** Clean the spark plugs in a sand blast type cleaner. Clean and inspect the porcelain for cracks. Set the gap on standard type to .025 to .028 inch on Resistor type plugs set gap at



**Figure 96—Breaker Points  
(Adjustable Breaker Plate Type)**

.035 inch, using a round feeler gauge. Make the adjustment on the side wire. If the center wire is bent, the porcelain may crack, resulting in plug failure. When installing the spark plugs, tighten with a torque wrench to 30 to 32 foot pounds.

**IGNITION TIMING** (fig. 97). In low altitudes with standard brands of non-premium gasoline, the engine will give its best performance if the timing is set according to the specifications given in paragraph 70. In high altitudes, the spark may be advanced by rotating the distributor housing counter-clockwise up to a point where a spark knock occurs at wide open throttle operation. Care must be taken not to advance the spark into the knocking range. Remove the timing plug over number six cylinder. Crank the engine until number six piston is coming up. Install a timing indicator in the hole provided. Turn the engine slowly until the piston is on top dead center on compression stroke. Loosen the distributor clamp bolt and rotate the distributor body until the points just start to open.



**Figure 97—Ignition Timing Adjustment**

This may be checked by removing the distributor cap and connecting a test lamp between the distributor terminal and ground, with the ignition switch "on." When the points are closed, the lamp will be out and as soon as the points break, the lamp will light. Press the distributor cam lightly against the direction of proper rotation so as to remove all backlash. Minor adjustment of the ignition timing may be made by loosening the distributor adjusting arm lock screw and rotating the distributor base slightly in the desired direction

## **48. FLUID DRIVE, CLUTCH AND POWER TAKE-OFF.**

### **a. Description.**

**FLUID DRIVE.** Some engines are equipped with a fluid drive coupling which eliminates all mechanical connections between the engine and the clutch. It consists of a driving and a driven member.

The driving member is a steel stamping in which a number of steel fins are welded. This member is

mounted on the end of the crankshaft and a cover plate is welded to the member forming a housing which contains a special fluid drive oil. The cover plate and driving member are welded together forming an oil tight seal.

The driven member contains a number of welded steel fins. The stamping is riveted to a hub attached to the clutch driving plate. The hub of the driven member rotates in a bearing submerged in the fluid in the assembly and therefore requires no other lubrication. The energy, set up by the revolving motion of the driving member through the medium of the fluid in the assembly, acts as a force on the fins of the driven member.

Fluid is maintained within the assembly by a bellows-type or housing type seal. The fluid drive is filled to about 80 per cent of its total volume with a very light, highly refined mineral oil which maintains uniform viscosity over a wide range of temperature.

**CLUTCH.** Some engines are equipped with a multiple spring, dry plate type clutch (see illustration in Parts Book Supplement). Coiled springs mounted between the clutch cover and the pressure plate cause the driven disc to be clamped between the pressure plate and the flywheel when the clutch is engaged.

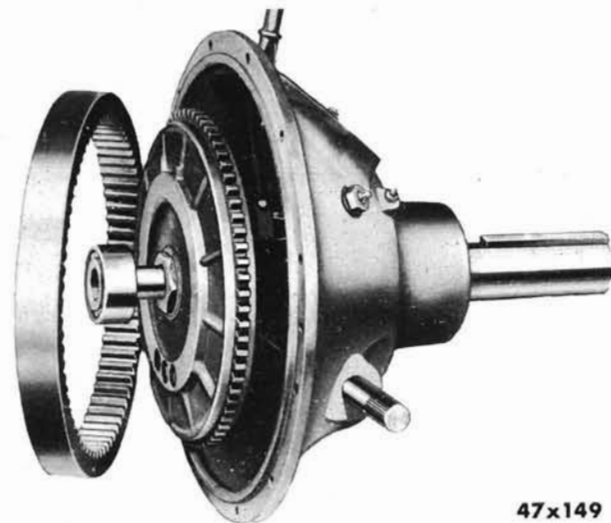
**b. Fluid Drive Maintenance.** After a new engine has been operated 25 hours, the level of the fluid in the assembly should be checked. Allow the unit to cool to normal room temperature before inspecting the fluid level. Rotate the fluid drive unit until the filler plug is opposite the filler hole in the clutch housing located 56 degrees from the upper vertical centerline. In this position, the fluid should be

level with the bottom of the filler plug opening in the fluid drive unit.

Loss of fluid from the fluid drive unit will be evidenced by excessive engine speeds, similar to a slipping clutch. The cause of fluid loss should be determined by inspection after removing the clutch housing pan. If leakage is at the filler plug, tighten the plug or replace the gasket and tighten the plug securely. If leakage is apparent at any point other than the filler plug, the unit must be removed for the necessary repairs.

The recommended operating capacity of the fluid drive is approximately 13 pints.

**c. Clutch Adjustments.** The release levers are adjusted when the clutch is assembled and require no further adjustment to compensate for clutch wear. As clutch wear takes place, the release linkage outside the clutch housing must be adjusted to provide clearance between the release bearing and the release levers when the clutch is engaged. Proper clearance at the release lever or pedal is 1 inch free play of the lever or pedal before disengaging the clutch.



47x149

Figure 98—Power Take-Off

POWER TAKE-OFF. Some engines are equipped with a power take-off (fig. 98) mounted on the clutch housing. This unit provides a direct drive output shaft from the clutch. The shaft is carried on a shaft bearing in the power take-off housing and by a pilot bearing in the flywheel.

#### 49. THREE-SPEED TRANSMISSION.

##### a. Removal and Installation of Transmission.

(1) Remove nuts which hold transmission to clutch housing.

(2) Insert pilot studs in place of the two upper studs in clutch housing and withdraw transmission.

To install, reverse the foregoing operations.

##### b. To Disassemble Transmission (Removed).

(Refer to fig. 99).

(1) Place the transmission in a fixture and drain the oil.

(2) Remove the transmission cover and gear shifter assembly.

(3) Remove the speedometer drive pinion oil seal.

(4) Disconnect the hand brake rod at the band and remove the horse shoe clip which anchors the hand brake linkage to the transmission.

(5) Remove the cap screws which hold the brake support to the transmission case and lift off the support, oil seal and hand brake assembly.

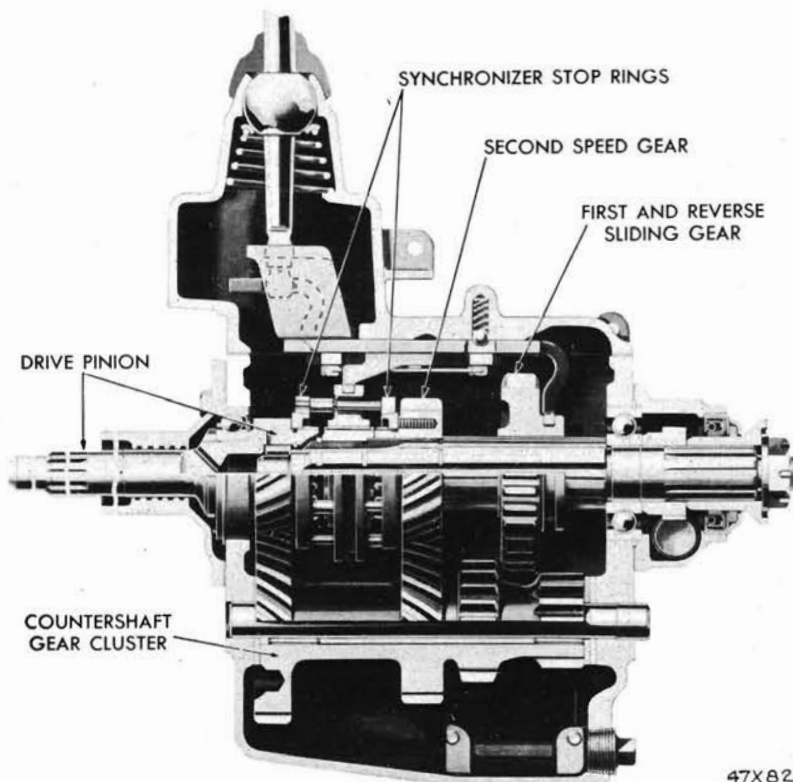


Figure 99—Transmission (3-Speed)



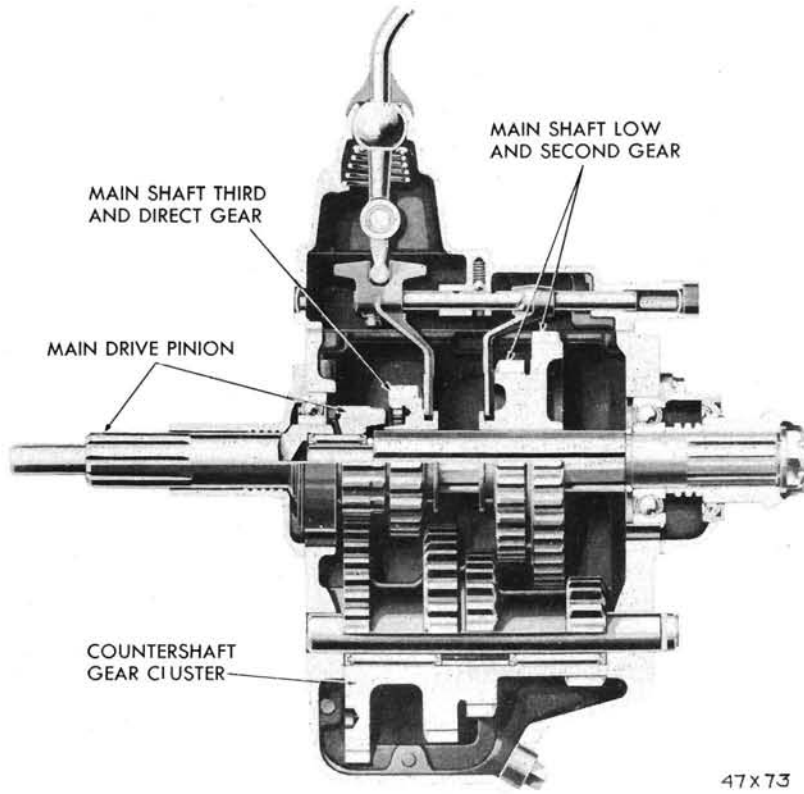


Figure 100—Transmission (4-Speed)

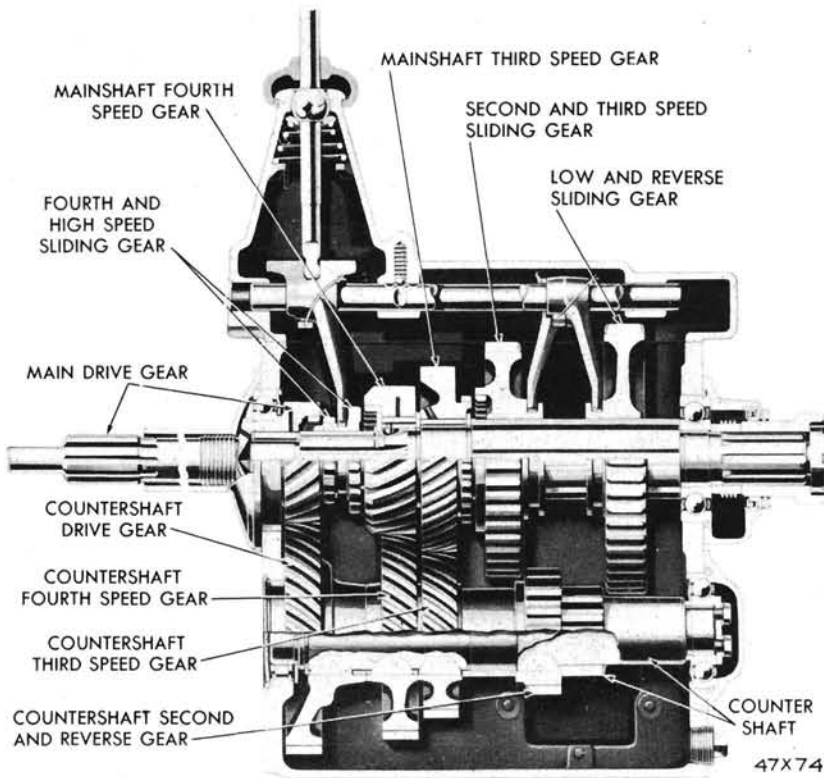
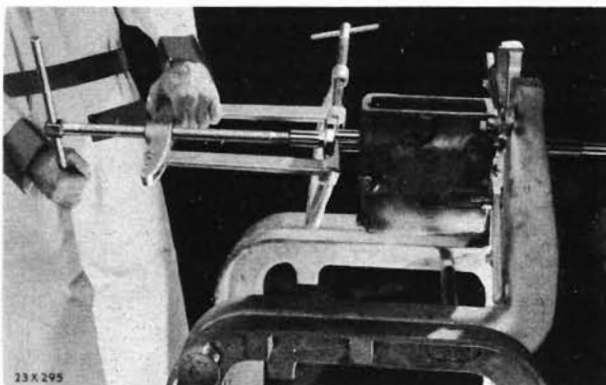


Figure 101—Transmission (5-Speed)

- (6) Remove speedometer drive gear.
- (7) Remove the main drive gear bearing retainer.
- (8) Pull the mainshaft and gear assembly out of the rear of the case far enough to remove mainshaft rear bearing (fig. 102).
- (9) Lift the mainshaft and gear assembly out of case (fig. 103).
- (10) Slide the low and reverse gear off the mainshaft.
- (11) Remove the clutch gear snap ring and slide off the synchronizer and second speed gear assembly. Refer to figures 104 and 106.
- (12) Remove countershaft lock screw and lock plate.
- (13) Drive countershaft out of the rear end of case, using a special arbor and soft hammer and drop the countershaft gear set to the bottom of case.
- (14) Pull the main drive pinion bearing lock nut and bearing.



**Figure 102—Removing Mainshaft Rear Bearing (3-Speed) (Tool CM-549)**



**Figure 103—Removing Mainshaft Assembly (3-Speed)**

- (15) Remove the drive pinion bearing lock nut and bearing.
- (16) Lift out the countershaft gear assembly and thrust washers. By removing the arbor, the countershaft bearings and spacers will be available for inspection.
- (17) Drive out idler gear shaft to the rear of transmission and remove idler gear.

The bearings on the rear ends of the main drive pinion and the mainshaft are held in place by means of snap rings.

Whenever these snap rings are removed, they should be replaced with new rings. Snap rings should not be used a second time.

#### **c. To Assemble Transmission.**

When assembling the transmission, all operations are performed in the reverse order of that given for disassembling, but care must be exercised as follows:

(1) Countershaft end play should be from .004 to .015 inch.

(2) When inserting the bearing rollers in the ends of the countershaft gear, pack the ends of the countershaft gear with a high grade medium cup grease, to hold the rollers in place. The countershaft gear thrust washers should be placed in correct position after they have been coated with cup grease. At the front end of the transmission, the small spacer is to be placed between the bronze washer and the countershaft bearings.

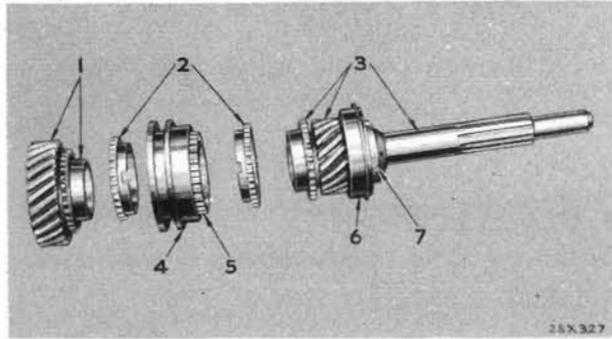
(3) The countershaft and reverse idler gear shaft lock plate must be securely tightened.

(4) When installing the main drive pinion bearing, the lock nut must be securely tightened and staked at the notches provided on the pinion shaft.

(5) Lift the countershaft gear set and insert the countershaft from the rear end of the case, driving it into position with a lead or rawhide mallet; at the same time forcing the countershaft installing arbor out of the case. Check the countershaft end play by prying the gears toward the front end, inserting a feeler gauge between the thrust washer and case in the rear. This end play should not be less than .004 inch or more than .015 inch. Thrust washers are available in two different thickness. Proper end play can easily be obtained by use of these different thickness washers.

(6) The synchronizer unit should be assembled exactly as shown in figure 104 and 106. The slots of the stop ring (2, fig. 104) should engage the plates in the clutch gear sleeve.

(7) When installing the transmission cover, place the first and reverse sliding gear and clutch gear sleeve in neutral position.



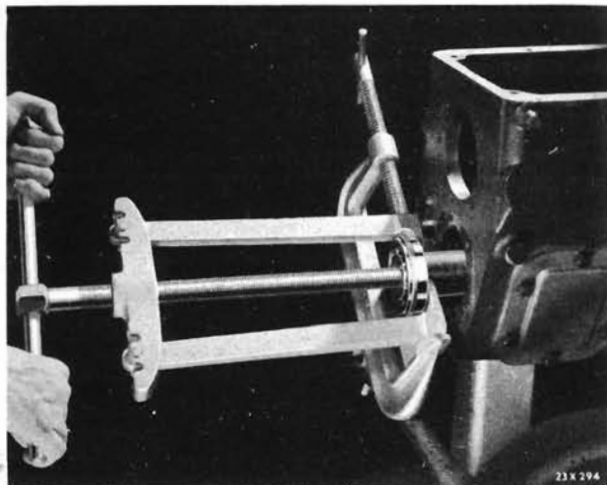
**Figure 104—Transmission Synchronizer and Second Speed Gear Assembly**

- 1—Transmission shaft second speed gear
- 2—Synchronizer stop rings
- 3—Drive pinion
- 4—Clutch gear sleeve
- 5—Clutch gear
- 6—Drive pinion bearing
- 7—Drive pinion bearing lock nut

## 50. FOUR-SPEED TRANSMISSION.

### a. Removal and Installation of Transmission.

- (1) Disconnect the speedometer cable (if so equipped).
- (2) Disconnect universal joints (if so equipped).
- (3) Remove cap screws which hold transmission to clutch housing.



**Figure 105—Removing Countershaft Rear Bearing, Tool CM-549**

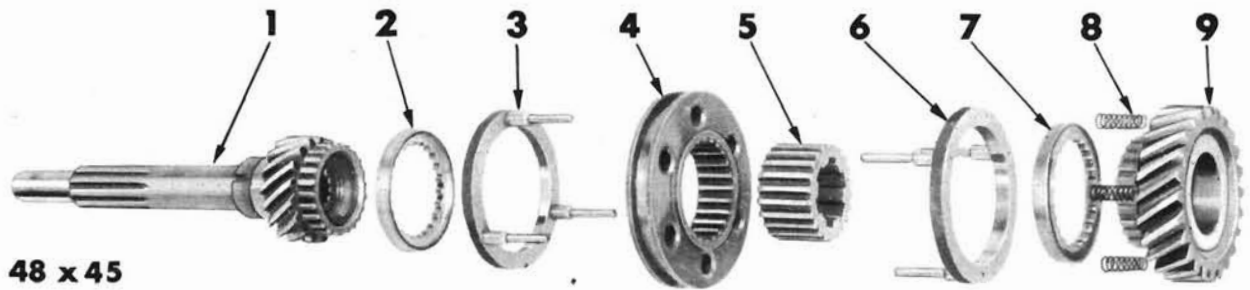


Figure 106—Transmission Synchronizer and Second Speed Gear Assembly

1—Main drive pinion  
 2—Direct speed synchronizer ring  
 3—Direct speed synchronizer stop ring  
 4—Clutch gear sleeve  
 5—Clutch gear

6—Second speed synchronizer stop ring  
 7—Second speed synchronizer ring  
 8—Coil spring  
 9—Second speed gear

(4) Insert pilot studs in place of the two upper cap screws in clutch housing and withdraw transmission.

To install, reverse the foregoing operations.

**b. To Disassemble Transmission (Removed).**  
 (Refer to fig. 100.)

(1) Mount the transmission assembly in a fixture and drain the oil. Apply the hand brake and remove the large nut and cotter pin from the companion yoke.

(2) Release the hand brake and remove the hand brake assembly, drum and companion yoke (if so equipped).

(3) Remove the transmission cover and shifter assembly.

(4) Remove the drive pinion bearing retainer, drive pinion and bearing.

(5) Remove the speedometer drive pinion (if so equipped).

(6) Remove the brake band support and oil seal.

(7) Pull the mainshaft and rear bearing out of

the rear of the case. Slide the gears off the mainshaft as it is being withdrawn from the case.

(8) Remove countershaft lock screw and lock.

(9) Drive countershaft out through the rear of the case using a soft drift and hammer.

(10) Remove the cotter pin, reverse fork rail and fork.

(11) Remove the countershaft gears, bearings and spacer.

(12) Drive the reverse idler shaft out through the rear of the case and remove the reverse idler gear and bushing.

**c. To Assemble Transmission.**

To assemble, reverse operations. If snap rings have been removed for any reason, always install new (unused) rings. Use new oil seals.

Paper gaskets .010 inch thick are used between the rear bearing retainer and the transmission case. When assembling the transmission, install the rear bearing retainer without the gaskets and measure with a feeler gauge between the retainer and case. Then, install sufficient paper gaskets to allow from

.003 inch play to .003 inch tension on the rear bearing. For example, if the clearance between the retainer and case is .012 inch, install one .010 inch paper gasket.

**d. To Disassemble Transmission Cover (Cover Removed).**

(1) Place the shift lever in neutral and remove shifter fork lock wires and lock screws.

(2) Drive gearshift rails out through rear of cover using a drift; at the same time forcing expansion plugs out.

(3) When driving out the gearshift rails, care must be taken not to lose the poppet balls and springs as they are under spring tension.

(4) Remove interlock plungers.

(5) Remove gearshift reverse plunger lock plug.

(6) Unscrew gearshift reverse plunger and retainer assembly out of gearshift lever.

(7) Remove gearshift lever reverse plunger lock after compressing spring.

(8) Remove gearshift lever reverse plunger and spring.

(9) Remove gearshift lever spring and pull lever out through bottom of cover.

To assemble, reverse operations being careful to center the reverse plunger in the gearshift lever so that the lever end is in line with the center shifting rail. Use new expansion plugs for the shift rails.

## 51. FIVE-SPEED TRANSMISSION.

### a. Removal and Installation of Transmission.

(1) Disconnect speedometer cable (if so equipped).

(2) Remove propeller shaft.

(3) Place roller jack under transmission and remove cap screws which hold transmission to clutch housing.

(4) With the jack, pull the transmission straight back about 6 inches. Then lower the jack slightly and move the transmission with the jack to the left so that the transmission main drive pinion will clear the clutch housing.

### b. To Disassembly Transmission (Removed) (Refer to fig. 101.)

(1) Mount the transmission assembly in a fixture, apply the hand brake and remove the cotter pin and large nut from the companion yoke and brake drum.

(2) Disassemble the brake band adjusting mechanism and remove the linkage and band.

(3) Pull the brake drum and companion yoke. Do not drive on the flange of the brake drum when removing the drum.

(4) Remove the transmission cover and shifter assembly.

(5) Remove the speedometer drive pinion (if so equipped).

(6) Remove rear bearing retainer, oil seal and speedometer drive gear (if so equipped).

(7) Remove the drive pinion bearing retainer, drive pinion and bearing.

(8) Pull the mainshaft and gear assembly out of the rear of the case far enough to remove the mainshaft rear bearing.

(9) Lift mainshaft and gears out of case.

(10) Remove fourth speed gear retainer ring, shims, retainer washer, bushing, roller and fourth speed gear.

(11) Remove third speed locating washer, third speed gear and rollers.

(12) Remove second and third speed sliding gear.

(13) Remove low and reverse sliding gear.

(14) Remove countershaft rear bearing retainer and gasket, retainer washer screws, washer and bearing. Move the countershaft to the rear of the base by prying between case and fifth speed countershaft gear. Pull the rear bearing off the countershaft (fig. 105).

(15) Lift countershaft up and out of case.

(16) Remove countershaft front bearing retainer ring and drive the front bearing and retainer out of the case.

(17) Remove reverse idler gear, shaft, gears, bearings and bearing spacer.

The countershaft drive gear, fourth speed gear, third speed gear, second and reverse gear can be removed by using an arbor press.

#### **c. To Assemble Transmission.**

When assembling the transmission, all operations are performed in the reverse order of that given for disassembling, but care must be exercised as follows:

(1) Fourth speed gear end play should be .001 to .007 inch. This end play is controlled by shims which are furnished in .003 and .005 inch thicknesses.

(2) Third speed gear end play should be 0 to .009 inch.

(3) Pack the third and fourth speed gears with

a high grade medium cup grease to hold the rollers in place while assembling.

(4) Use new (unused) snap rings and oil seals.

(5) The two lower bolts for the drive pinion bearing retainer have thinner heads than the two upper bolts to provide clearance. Be sure to install them correctly when installing the transmission.

(6) Install the hand brake to the proper clearance.

#### **d. To Disassemble Transmission Cover (Cover Removed).**

(1) Place the shift lever in neutral and remove all shifter fork lug to rail lock wires and screws.

(2) Remove shift rail expansion plugs at front of cover.

(3) Push shift rails out front of cover in the following order:

(a) Low and reverse rail.

(b) Fourth and fifth rail.

(c) Second and third rail.

#### **CAUTION**

*When pushing out the gearshift rails, care must be taken not to lose the poppet balls and springs as they are under spring tension.*

(4) The reverse latch plunger assembly will slide off the low and reverse shift rail as it is being removed. To install a new spring or plunger, remove the cotter pin and nut.

(5) Remove gearshift lever dust cover and spring.

(6) Pull lever through bottom of cover.

To assemble, reverse operations. The shift rails and shift forks must be installed in their correct positions.

## Section V

# SPECIFICATIONS AND TOLERANCES

### 52. GENERAL DATA.

Make.....Chrysler Industrial  
 Number of cylinders.....6  
 Models.....IND. 5, 5A, 6, 6A, 7, 7A, 8 and 8A

#### Cylinder bore:

IND. 5—5A..... $3\frac{1}{4}$  in.  
 IND. 6—6A..... $3\frac{1}{4}$  in.  
 IND. 7—7A..... $3\frac{7}{16}$  in.  
 IND. 8—8A..... $3\frac{7}{16}$  in.

#### Stroke:

IND. 5—5A..... $4\frac{3}{8}$  in.  
 IND. 6—6A..... $4\frac{5}{8}$  in.  
 IND. 7—7A..... $4\frac{1}{4}$  in.  
 IND. 8—8A..... $4\frac{1}{2}$  in.

#### Piston displacement:

IND. 5—5A.....217.8 cu. in.  
 IND. 6—6A.....230.2 cu. in.  
 IND. 7—7A.....236.6 cu. in.  
 IND. 8—8A.....250.6 cu. in.

#### Compression ratio:

IND. 5—5A.....6.6 to 1  
 IND. 6—6A.....6.7 to 1  
 IND. 7—7A.....6.6 to 1  
 IND. 8—8A.....6.6 to 1

#### Compression pressure at cranking

speed (125 rpm).....110 to 140 lb.

#### Maximum torque:

IND. 5—5A.....172 ft. lb. at 1200 rpm  
 IND. 6—6A.....186 ft. lb. at 1200 rpm  
 IND. 7—7A.....193 ft. lb. at 1200 rpm  
 IND. 8—8A.....206 ft. lb. at 1400 rpm

#### Brake horsepower (gross):

IND. 5—5A.....95 at 3600 rpm  
 IND. 6—6A.....95 at 3400 rpm  
 IND. 7—7A.....109 at 3600 rpm  
 IND. 8—8A.....113 at 3600 rpm  
 Firing order.....1-5-3-6-2-4

### 53. CYLINDER BLOCK AND HEAD.

Type.....“L” head

#### Cylinder bore:

IND. 5—5A.....3.250 in.  
 IND. 6—6A.....3.250 in.  
 IND. 7—7A.....3.4375 in.  
 IND. 8—8A.....3.4375 in.

#### Maximum allowable cylinder

bore taper.....0.020 in.

#### Maximum allowable cylinder

bore out-of-round.....0.005 in.

#### Torque wrench pull on cylinder

head cap screw...65 to 70 ft. lb. (Tighten Hot)

#### Torque wrench pull on cylinder

head stud nuts.....52 to 57 ft. lb.

### 54. CAMSHAFT AND BEARINGS.

Number of bearings.....4

Type of bearings.....3 steel-backed babbitt  
 1 machined in block

Thrust taken by.....Thrust plate

#### Camshaft) bearing journal diameter:

No. 1 (front).....1.998 to 1.999 in.

|                                 |                      |
|---------------------------------|----------------------|
| No. 2.....                      | 1.9665 to 1.9675 in. |
| No. 3.....                      | 1.935 to 1.936 in.   |
| No. 4.....                      | 1.2475 to 1.2485 in. |
| Maximum allowable wear.....     | 0.002 in.            |
| Camshaft bearing clearance..... | 0.001 to 0.0035 in.  |
| Maximum allowable.....          | 0.005 in.            |
| Camshaft end play.....          | 0.002 to 0.006 in.   |
| Maximum allowable.....          | 0.010 in.            |

**55. TIMING CHAIN.**

|   |         |
|---|---------|
| Make.....   | Morse   |
| Width.....  | 1 in.   |
| Number links.....                                 | 48      |
| Maximum allowable slack<br>between sprockets..... | 3/4 in. |

**56. CONNECTING RODS AND BEARINGS.**

|   |                                     |
|---|-------------------------------------|
| Connecting rod center-to-center length:     |                                     |
| IND. 5—5A.....                              | 7 <sup>15</sup> / <sub>16</sub> in. |
| IND. 6—6A.....                              | 7 <sup>13</sup> / <sub>16</sub> in. |
| IND. 7—7A.....                              | 8 in.                               |
| IND. 8—8A.....                              | 7 <sup>7</sup> / <sub>8</sub> in.   |
| Bearing type.....                           | Removable precision                 |
| Bearing clearance.....                      | 0.0005 to 0.0015 in.                |
| Maximum allowable.....                      | 0.002 in.                           |
| Torque wrench pull on bearing<br>bolts..... | 45 to 50 ft. lb.                    |
| Maximum allowable twist.....                | 0.0015 in. (per inch)               |
| Maximum allowable bend.....                 | 0.00075 in. (per inch)              |

**57. CRANKSHAFT AND BEARINGS.**

|                         |                       |
|-------------------------|-----------------------|
| Number of bearings..... | 4                     |
| Thrust taken by.....    | Rear main bearing     |
| Bearing type.....       | Replaceable precision |

|   |                       |
|---|-----------------------|
| Crankshaft end play.....                              | 0.003 to 0.007 in.    |
| Maximum allowable.....                                | 0.010 in.             |
| Crankshaft maximum allowable<br>runout.....           | 0.003 in. (at center) |
| Crankshaft bearing<br>clearance.....                  | 0.0005 to 0.0015 in.  |
| Maximum allowable clearance.....                      | 0.002 in.             |
| Diameter Connecting rod bearing journals:             |                       |
| IND. 5—5A.....  | 2.0615 to 2.0625 in.  |
| IND. 6—6A.....  | 2.0615 to 2.0625 in.  |
| IND. 7—7A.....  | 2.124 to 2.125 in.    |
| IND. 8—8A.....  | 2.124 to 2.125 in.    |
| Maximum allowable taper or<br>out of round.....       | 0.001 in.             |
| Crankshaft bearing journals:                          |                       |
| Diameter.....   | 2.4995 to 2.5005 in.  |
| Maximum allowable taper or<br>out-of-round.....       | 0.001 in.             |
| Torque wrench pull on main bearing<br>cap screws..... | 80 to 85 ft. lb.      |

**58. PISTONS.**

|                                |  |
|--------------------------------|--|
| Type:                          |  |
| IND. 5—5A.....                 | Cast Iron, cam ground                                  |
| IND. 6—6A.....                 | Aluminum, cam ground                                   |
| IND. 7—7A.....                 | Cast Iron, cam ground                                  |
| IND. 8—8A.....                 | Cast Iron, cam ground                                  |
| Length:                        |  |
| Aluminum alloy.....            | 3 <sup>11</sup> / <sub>16</sub> in.                    |
| Cast iron.....                 | 3 <sup>1</sup> / <sub>2</sub> in.                      |
| Clearance—top land:            |  |
| Aluminum alloy.....            | 0.028 to 0.033 in.                                     |
| Cast iron.....                 | 0.018 to 0.026 in.                                     |
| Clearance—skirt (thrust side): |  |
| Aluminum alloy.....            | 5 to 7 lb. pull on 1/2 in.<br>strip of 0.002 in feeler |



Cast iron . . . . . 6 to 10 lb. pull on 1/2 in.  
strip of 0.0015 in. feeler

Total cam:

Aluminum alloy . . . . . 0.012 to 0.014 in.

Cast iron . . . . . 0.0035 to 0.0045 in.

Taper of skirt . . . . . 0.0005 to 0.0015 in.

**59. PISTON PINS.**

Type . . . . . Floating

Diameter . . . . . 0.8591 to 0.8593 in.

Length:

IND. 5—5A . . . . . 2 3/4 in.

IND. 6—6A . . . . . 2 3/4 in.

IND. 7—7A . . . . . 2 7/8 in.

IND. 8—8A . . . . . 2 7/8 in.

**60. PISTON RINGS.**

Number of compression rings per piston . . . . . 2

Number of oil rings per piston . . . . . 2

Width of compression rings . . . . . 3 3/32 in.

Width of oil rings . . . . . 5 3/32 in.

Compression ring side clearance. 0.002 to 0.004 in.

Maximum allowable . . . . . 0.008 in.

Chrome plated compression ring

side clearance . . . . . 0.006 in.

Oil ring side clearance . . . . . 0.001 to 0.003 in.

Maximum allowable . . . . . 0.004 in.

Cast iron piston ring gap . . . . . 0.007 to 0.015 in.

Maximum allowable . . . . . 0.030 in.

Chrome plated compression

ring gap . . . . . 0.007 to 0.017 in.

Maximum allowable . . . . . 0.030 in.

**61. VALVES AND SPRINGS.**

Type . . . . . Poppet

Seat angle . . . . . 45 deg.

Valve stem diameter:

Intake IND. 5, 5A, 6

and 6A . . . . . 0.340 to 0.341 in.

Intake IND. 7, 7A, 8

and 8A . . . . . 0.3405 to 0.3415 in.

Exhaust (standard type valve):

IND. 5, 5A, 6, and 6A . . . . . 0.340 to 0.341 in.

IND. 7, 7A, 8 and 8A . . . . . 0.3395 to 0.3405 in.

Exhaust (sodium-cooled type

valve) . . . . . 0.433 to 0.434 in.

Maximum allowable wear . . . . . 0.001 in.

Intake valve stem clearance

in guide . . . . . 0.001 to 0.003 in.

Maximum allowable . . . . . 0.004 in.

Exhaust valve stem clearance in guide:

Standard type valve . . . . . 0.002 to 0.005 in.

Maximum allowable . . . . . 0.006 in.

Sodium-cooled type valve . . . . . 0.003 to 0.005 in.

Maximum allowable . . . . . 0.006 in.

Valve spring pressure:

At length of 1 3/4 in. (valve closed) . . . 39 to 43 lb.

At length of 1 3/8 in. (valve open) . . . 75 to 81 lb.

**62. VALVE TAPPETS.**

Stem diameter . . . . . 0.6235 to 0.6240 in.

Maximum allowable wear . . . . . 0.0015 in.

Stem clearance in guide . . . . . 0.000 to 0.001 in.

Maximum allowable . . . . . 0.0015 in.

Tappet clearance:

Intake valves (engine hot or cold) . . . . 0.010 in.

Exhaust valves (standard type—  
engine hot) . . . . . 0.014 in.

Exhaust valves  
standard type—engine cold . . . . . 0.016 in.

Exhaust valves (sodium-  
cooled type—engine hot) . . . . . 0.018 in.

Exhaust valves (sodium-cooled type—engine cold).....0.020 in.

Valve timing—Intake opens BTDC  
 (Tappets set to 0.014 in.):

Crankshaft rotation.....5 to 17 deg.

Piston travel.....0.011 to 0.125 in.

**63. VALVE GUIDES.**

Type.....Removable

Ream to:

Intake IND. 5, 5A, 6 and 6A..0.342 to 0.343 in.

IND. 7, 7A, 8  
 and 8A.....0.3425 to 0.3435 in.

Exhaust (standard type valve):

IND. 5, 5A, 6 and 6A..0.344 to 0.345 in.

IND. 7, 7A, 8  
 and 8A.....0.3425 to 0.3435 in.

Exhaust (sodium-cooled type valve).....0.437 to 0.438 in.

Distance from top of cylinder block to top of valve stem guide:

Intake..... $\frac{7}{8}$  in.

Exhaust (standard type valve)..... $\frac{7}{8}$  in.

Exhaust (sodium-cooled type valve).... $1\frac{1}{16}$  in.

**64. OILING SYSTEM.**

Type.....Pressure

Oil Capacity.....5 qts.

Pressure at which relief valve opens..45 to 55 lbs.

Oil pump intake.....Floating screen

**65. OIL PUMP.**

Oil pump type.....Rotor

Pump body inner diameter....2.250 to 2.252 in.

Maximum allowable wear.....0.002 in.

Pump body depth.....0.751 to 0.752 in.

Maximum allowable wear.....0.002 in.

Shaft bore.....0.4865 to 0.4875 in.

Maximum allowable wear.....0.003 in.

Cover gasket thickness.....0.038 to 0.042 in.

Outer and inner rotor length...0.749 to 0.750 in.

Maximum allowable wear.....0.002 in.

Outer diameter of outer rotor...2.246 to 2.475 in.

Maximum allowable wear.....0.002 in.

Pump shaft diameter.....0.4853 to 0.4858 in.

Maximum allowable wear.....0.003 in.

Pump shaft end play  
 (cover removed).....0.003 to 0.008 in.

Maximum allowable wear.....0.010 in.

**66. CARBURETOR.**

**a. Ball and Ball (Model E7D1)**

Type.....Downdraft

Throttle bore..... $1\frac{11}{16}$  in.

Float setting..... $\frac{5}{64}$  in. below top surface of body casting

Adjustment.....Idling Mixture Only

Main metering jet.....Carter No. 159-93S

Step-up jet.....Carter No. 149-99S

Accelerating jet.....Carter No. 48-73

Idle orifice tube.....Carter No. 123-47S

**b. Ball and Ball (Model E7E1 - E7E2 - E7P1)**

Type.....Downdraft

Throttle bore..... $1\frac{11}{16}$  in.

Float setting..... $\frac{5}{64}$  in. below top surface of body casting

Adjustment.....Idling Mixture Only

Main metering jet.....Carter No. 159-93S

Step-up jet.....Carter No. 149-99S

Accelerating jet.....Carter No. 48-73

Idle orifice tube.....Carter No. 123-47S

**c. Ball and Ball (Model E7T1)**

Type.....Downdraft  
 Throttle bore..... $1\frac{1}{16}$  in.  
 Float setting..... $\frac{5}{64}$  in. below top surface of  
 body casting  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....Carter No. 224-13S  
 Step-up jet.....Carter No. 149-56S  
 Accelerating jet.....Carter No. 48-75  
 Idling orifice tube.....Carter No. 123-31S

**d. Ball and Ball (Model DTE1)**

Type.....Downdraft  
 Throttle bore..... $1\frac{9}{16}$  in.  
 Float setting..... $\frac{5}{64}$  in. below top surface of  
 body casting  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....Carter No. 224-11S  
 Step-up jet.....Carter No. 149-41S  
 Accelerating jet.....Carter No. 48-103  
 Idle orifice tube.....Carter No. 123-31S

**e. Ball and Ball (Model DTG1)**

Type.....Downdraft  
 Throttle bore..... $1\frac{1}{16}$  in.  
 Float setting..... $\frac{5}{64}$  in. below top surface of  
 body casting  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....Carter No. 224-11S  
 Step-up jet.....Carter No. 149-41S  
 Accelerating jet.....Carter No. 48-103  
 Idle orifice tube.....Carter No. 123-31S

**f. Stromberg (Model BXVD 3-99)**

Type.....Downdraft  
 Throttle Bore..... $1\frac{9}{16}$  in.  
 Fuel level from top of body..... $\frac{5}{8}$  in.  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....Stromberg No. P-19442—.061

Step-up jet.....Stromberg No. 385449  
 Accelerating jet.....Stromberg No. P-24062  
 Idle orifice tube.....Stromberg No. P-21778

**g. Ball and Ball (Model 6N1)**

Type.....Up-draft  
 Throttle bore..... $1\frac{7}{16}$  in.  
 Float setting..... $\frac{1}{32}$  to  $\frac{1}{16}$  in. below top surface  
 of body casting  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....Carter No. 159-35  
 Step-up jet.....Carter No. 149-66S  
 Accelerating jet.....Carter No. 149-65S  
 Idle orifice tube.....Carter No. 123-16

**h. Zenith (Model 0-10990)**

Type.....Up-draft  
 Throttle bore..... $1\frac{5}{16}$  in.  
 Float setting..... $1\frac{39}{64}$  in. from top of float to top  
 body with gasket removed and  
 body inverted  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....C-52-6-28  
 Economizer jet.....C-52-1-15  
 Idle jet.....C-55-7-20

**i. Zenith (Model 0-11000)**

Type.....Up-draft  
 Throttle bore..... $1\frac{11}{16}$  in.  
 Float setting..... $1\frac{19}{32}$  in. from top of float to top  
 of body with gasket removed  
 and body inverted  
 Adjustment.....Idling Mixture Only  
 Main metering jet.....C-52-13-27  
 Power jet valve.....C-97-10-19  
 Power jet.....C-52-14-27  
 Idle jet.....C-55-7-16

**67. FUEL PUMP.**

Make ..... A. C.  
 Operating pressure ..... 3 to 4½ lb.

**68. GOVERNORS.**

**a. Pierce (Mechanical)**

Model ..... GC-424-B  
 Maximum speed range ..... 1600 to 1900 rpm

**b. Pierce (Mechanical)**

Model ..... GC-424  
 Maximum speed range ..... 2000 to 2500 rpm

**c. Pierce (Mechanical)**

Model ..... GC-904  
 Maximum speed range ..... 1000 to 3000 rpm

**d. Carter (Velocity)**

Model ..... 220-13  
 Maximum speed range ..... 1200 to 2800 rpm

**69. COOLING SYSTEM.**

**a. Water Pump (Ball Bearing Type)**

Type ..... Centrifugal  
 Drive ..... Belt  
 Maximum distance from face of pump  
 body to sealing surface ..... 1¼ in.  
 Distance between lugs on seal retaining  
 washer and the washer lock ring ..... ¾ in.

**b. Water Pump (Bushing Type)**

Type ..... Centrifugal  
 Drive ..... Belt  
 Pump shaft end play ..... 0.0005 to 0.005 in.  
 Shaft diameter (front bushing) .0.593 to 0.594 in.  
 Shaft diameter (rear bushing) .0.688 to 0.6694 in.  
 Bushing diameter (front) ..... 0.595 to 0.596 in.  
 Bushing diameter (rear) ..... 0.670 to 0.671 in.  
 Maximum distance from face of pump body  
 to sealing surface ..... 1½ in.

Distance between lugs on seal retaining  
 washer and the washer lock ring ..... ¾ in.

**c. Fan**

Drive ..... Belt  
 Belt adjustment ..... By moving generator  
 Belt tension ..... ½ in. finger deflection

**d. Thermostat**

Location ..... In cylinder head water outlet elbow  
 Starts to open at ..... 157° to 162° F.  
 Fully open at ..... 183° F.

**70. IGNITION DISTRIBUTOR.**

**a. Auto-Lite (Model IAD-4201-1 and 4203-1  
 Sealed Type or Dust Proof)**

Firing order ..... 1-5-3-6-2-4  
 Distributor Breaker Point Gap .0.018 to 0.020 in.  
 Distributor Point Spring Tension ..... 18 to 20 oz.  
 Ignition Timing ..... Top dead center  
 Point dwell ..... 38 deg.  
 Condenser capacity ..... 25 to 28 microfarad  
 Maximum allowable bushing wear ..... 0.005 in.  
 Maximum allowable shaft end  
 play wear ..... 0.010 in.  
 Automatic advance curve:

| Distributor rpm     | Distributor degrees     |
|---------------------|-------------------------|
| IAD-4201-1          | IAD-4203-1 (± 1 degree) |
| 350                 | 350 0                   |
| 400                 | 400 3                   |
| 620                 | 650 5                   |
| 940                 | 1025 8                  |
| 1150 (full advance) | 1400 (full advance) 11  |

**b. Auto-Lite (Model IAD 4201)**

Firing order.....1-5-3-6-2-4

Distributor breaker point gap...0.018 to 0.020 in.

Distributor breaker point  
spring tension.....18 to 20 oz.

Ignition timing.....Top dead center  
Point dwell.....38 deg.

Condenser capacity.....25 to 28 microfarad

Maximum allowable bushing wear.....0.005 in.

Maximum allowable shaft end play.....0.010 in.

Automatic advance curve:

| Distributor rpm          | Distributor degrees<br>(±1 deg.) |
|--------------------------|----------------------------------|
| 350.....                 | 0                                |
| 400.....                 | 3                                |
| 715.....                 | 6                                |
| 925.....                 | 8                                |
| 1130 (full advance)..... | 10                               |

**c. Auto-Lite (Model IAD 4203)**

Firing order.....1-5-3-6-2-4

Distributor breaker  
point gap.....0.018 to 0.020 in.

Distributor breaker point  
spring tension.....18 to 20 oz.

Ignition timing.....Top dead center  
Point dwell.....38 deg.

Condenser capacity.....25 to 28 microfarad

Maximum allowable bushing wear.....0.005 in.

Maximum allowable shaft  
end play.....0.010 in.

Automatic advance curve:

| Distributor rpm | Distributor degrees<br>(±1 deg.) |
|-----------------|----------------------------------|
| 350.....        | 0                                |
| 400.....        | 3                                |

|                          |    |
|--------------------------|----|
| 770.....                 | 6  |
| 1150.....                | 9  |
| 1400 (full advance)..... | 11 |

**71. SPARK PLUGS.**

Make.....Auto-Lite

Type (standard).....A-5  
(Resistor).....AR-5  
(Conventional warm).....A-7

Size.....14 mm

Point gap (conventional).....0.025 to 0.028 in.

Resistor.....0.035 in.

Torque wrench pull on plug.....30 to 32 ft. lb.

**72. GENERATORS AND VOLTAGE REGULATORS.**

**a. Auto-Lite (Models GDZ-4801-C, GDZ-4801-D)**

Rated capacity.....6 volts, 35 amps.

Voltage regulators specified.....VRP 4001-A  
4401-A  
4501-A  
4503-A

**b. Auto-Lite (Model GDZ-4820-AM)**

Rated capacity.....6 volts, 17 amps.

Voltage regulator specified.....VRP-4302-AM

**c. Auto-Lite (Model GBM-4610-A-5)**

Rated capacity.....6 volts, 10 amps.

Charging rate controlled by third  
brush and C-B-4014 cut-out relay  
mounted on generator,

Voltage regulator specified.....CB-4014-C

**d. Auto-Lite (Model GDJ-4808-A)**

Rated capacity.....12 volts, 55 amps.

Voltage regulator specified.....VRH-4104-D1

e. Auto-Lite (Model GGW-6001-A,  
 GGW-6001-C)

Rated capacity . . . . . 6 volts, 40 amps.  
 Voltage regulator specified . . . . . VRP-4503-B

**73. STARTER.**

a. Auto-Lite (Models MAX-4048 and MAX-4058)

Drive . . . . . Bendix  
 Rated voltage . . . . . 6 volts  
 Switch . . . . . Solenoid operated

b. Auto-Lite (Model MAX-4050)

Rated voltage . . . . . 6 volts  
 Drive . . . . . Overrunning clutch  
 Switch . . . . . Solenoid operated

c. Auto-Lite (Model MAX-4029)

Rated voltage . . . . . 6 volts  
 Drive . . . . . Overrunning clutch  
 Switch . . . . . Manually operated

d. Auto-Lite (Model MAX-4109-B)

Rated voltage . . . . . 12 volts  
 Drive . . . . . Overrunning clutch  
 Switch . . . . . Solenoid operated

e. Auto-Lite (Model MAX-4062)

Rated voltage . . . . . 6 volts  
 Drive . . . . . Overrunning clutch  
 Switch . . . . . Solenoid operated

**74. CLUTCH.**

a. Driven disc diameter  $9\frac{1}{4}$  inch—used with  
 fluid coupling

Make . . . . . Borg and Beck  
 Type . . . . . Single dry plate

Number and color of

pressure springs . . . . . 9 (orange)  
 Pressure spring load . . . 165 to 175 lb. when com-  
 pressed to  $1\frac{1}{2}$  in.  
 Release bearing . . . . . Pre-lubricated ball  
 Release lever height  
 above flywheel.  $1\frac{5}{16} \pm \frac{1}{32}$  in. when pressure  
 plate is setting on 0.285 in.  
 gauge blocks

**b. Driven Disc Diameter 10 in.**

Make . . . . . Borg and Beck  
 Type . . . . . Single dry plate  
 Number and color of  
 pressure springs . . . . . 9 (unpainted)  
 Pressure spring load . . 150 to 160 lb. when com-  
 pressed to  $1\frac{1}{16}$  in.  
 Release bearing . . . . . Pre-lubricated ball  
 Release lever height above  
 flywheel.  $1\frac{5}{16} \pm \frac{1}{32}$  in. when pressure plate  
 is setting on 0.330 in. gauge blocks

**c. Driven Disc Diameter 11 in.**

Make . . . . . Borg and Beck  
 Type . . . . . Single dry plate  
 Number and color of  
 pressure springs . . . . . 12 (purple)  
 Pressure spring load . . 130 to 140 lb. when com-  
 pressed to  $1\frac{1}{16}$  in.  
 Release bearing . . . . . Pre-lubricated ball  
 Release lever height above  
 flywheel. . . . .  $2 \pm \frac{1}{32}$  in. when pressure plate is  
 setting on 0.285 in. gauge blocks

**75. POWER TAKE-OFF AND  
 CLUTCH ASSEMBLY.**

Make . . . . . Rockford Clutch Co. or  
 Twin Disc Clutch Co.

Type.....Single dry plate with overcenter  
toggle action

Driven disc diameter—IND. 5,  
5A, 6, 6A, 7, 7A, 8 and 8A.....10½ in.  
IND. 7, 7A, 8 and 8A.....12 in.

Out-board drive shaft bearings.....Taper roller

Pilot in flywheel.....Lubricated ball bearing

**76. FLUID DRIVE.**

Make.....Chrysler

Size.....13 in.

Location.....Between engine and clutch

Fluid level.....Filler opening in clutch housing

Fluid capacity.....13 pints

PART TWO

MODEL SERIES IND. 5-6-7-8

CHRYSLER INDUSTRIAL

BASE ENGINE

PARTS LIST



CHRYSLER MOTORS PARTS CORPORATION  
SUBSIDIARY OF CHRYSLER CORPORATION  
DETROIT 31, MICHIGAN



INDEX

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## BASE ENGINE

## PARTS LIST

## INDEX

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When ordering parts always consult the PARTS BOOK SUPPLEMENT before referring to BASE ENGINE PARTS LIST.

IMPORTANT - Complete information as to engine type and serial number is stamped on the brass plate located on the manifold side of the engine, and should be mentioned in all parts orders or in any communications pertaining thereto. (Number stamped on left front end of cylinder block is a manufacturing code and should not be used.)

GENERAL INFORMATION

**GENERAL INFORMATION**

This parts list is supplied for your convenience in identifying, specifying and ordering service replacement parts for IND. 5, 6, 7 and 8 ENGINES. The arrangement of material and the use of this Parts List

is explained in detail on the following pages. We suggest you review these pages thoroughly before using parts list.

**INFORMATION**

The information consolidated into this parts list includes the following:

SERIAL NUMBER

DESCRIPTION AND DIMENSIONS NECESSARY FOR PROPER IDENTIFICATION OF PARTS.

PART TYPE CODE

PART NAME

PART NUMBER

MODEL APPLICATION

QUANTITY USED PER VEHICLE

EFFECTIVE POINTS OF CHANGES BY ENGINE

STANDARD PARTS (BOLTS, NUTS, ETC.)

**STANDARD PARTS (BOLTS, NUTS, ETC.)**

The Standard Parts listed in this publication as "Attaching Standard Parts" are listed under the major parts which they attach and are not coded.

Standard Parts listed as Major Parts such as fuses, bulbs, bearings in the 100,000 part number series,

are assigned a Part Type Code and coded within the Group in which they are listed.

For complete list of Standard Parts see "Standard Parts List" D-11171 dated May, 1946.

**ABBREVIATIONS**

Abbreviations as used throughout this list are interpreted as follows:

asb. . . . . asbestos  
B. E. . . . . black enamel  
br. . . . . brass  
bz. . . . . bronze  
C. I. . . . . cast iron  
cd-pltd. . . . . cadmium plated  
chamf. . . . . chamfered  
chr. . . . . chromium  
chr-pltd. . . . . chromium plated  
ck. . . . . countersunk  
ck-hdls. . . . . countersunk headless  
Cont'd. . . . . continued  
cop. and asb. . . . . copper and asbestos  
cp. . . . . candle power  
dld. f/c-pin . . . . . drilled for cotter pin  
diam. . . . . diameter  
etc. . . . . et cetera  
fil-hd. . . . . fillister head  
fin. . . . . finish  
fl-hd. . . . . flat head  
ft. . . . . foot or feet  
hd. . . . . head  
hdls. . . . . headless  
hex. . . . . hexagon  
hex-hd. . . . . hexagon head  
I. D. . . . . inner diameter  
in. . . . . inch

incl. . . . . inclusive  
lgh. . . . . length  
M. I. . . . . malleable iron  
med. . . . . medium  
ni-pltd. . . . . nickel plated  
ni-S. . . . . nickel steel  
No. . . . . number  
O. D. . . . . outer diameter  
oz. . . . . ounce  
pkd. . . . . parkerized  
pln. . . . . plain  
pltd. . . . . plated  
pt. . . . . point  
rd. . . . . round  
rd-hd. . . . . round head  
rd-pt. . . . . round point  
req'd. . . . . required  
S. . . . . steel  
s-fin. . . . . semi-finished  
sq. . . . . square  
sq-hd. . . . . square head  
std. . . . . standard  
stght. . . . . straight  
T. . . . . teeth  
thd. . . . . thread  
thk. . . . . thick  
tub. . . . . tubular  
w/ . . . . . with  
w/o . . . . . without  
zinc-pltd. . . . . zinc plated

GENERAL INFORMATION - Cont'd

**PART TYPE CODE SYSTEM**

A system of PART TYPE CODES is used in this parts list to simplify the listing and locating of individual parts.

To illustrate, a TYPE of PART will be indicated as:

- 9-03-4 HEAD, Cylinder, w/Core Hole PLUG, Assembly
- 9- Indicates the Major Group - "Group 9 - Engine"
- 03 Indicates Sub-Group - "03 - Cylinder Head."
- 4 Indicates the code for the specific name of the part - Cylinder Head and Core Hole Plug Assembly

The part type code 9-03-4 will always appear as HEAD, Cylinder, w/Core Hole PLUG, Assembly in every Parts List hereafter so all Parts Lists will be uniform.

You will note that the first number is the Group

Number viz., 9 - Engine. The next number (following the group number) - 03 is the Sub-Group Number. Sub-Group Numbers are listed in numerical sequence within each group. The last number (following the sub-group number) - 4 is the item number or code for the specific name of the part. These item or code numbers are listed in numerical sequence within each Sub-Group.

Part type codes shown in the description column in parentheses ( ) indicate that the part number is used in other groups under that part type code.

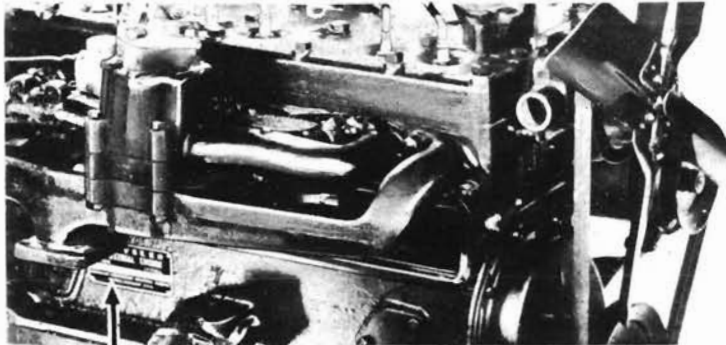
The part type code numbers which are listed on each page are indicated at the top of the page.

Standard parts listed as Major Parts are coded in the group in which they appear. "Attaching Standard Parts" are not coded. For further information on Standard Parts see Standard Parts List D-11171 dated May, 1946.

**ENGINE SERIAL NUMBER**

The Engine Serial Number is stamped on a brass plate on the manifold side of the engine and should be mentioned in all parts orders or in communi-

cations. The number stamped on the left front end of the cylinder block is a manufacturing code and should not be used for the purpose of identification.



WHEN ORDERING  
PARTS BE SURE  
TO MENTION



19x3848

SERIAL NUMBER PLATE

GENERAL INFORMATION - Cont'd

## ILLUSTRATIONS

The Illustrations in this Parts List show the typical construction of the various parts but in all cases may not show the exact shape or detail of part required; however, these are for the purpose of identifying parts performing the same or similar function.

All Illustrations are located in the Front of each group. The parts are identified on the Illustrations by Noun Name and Part Type Code.

## ALPHABETICAL INDEX

Quick reference to any part by noun name (with the exception of Standard Parts used as Attaching Parts) is provided in the Alphabetical Index. This index indicates the Page Number and Part Type Code under

which each part is listed.

Standard Parts which are used as Major Parts are included in this Index.

## NUMERICAL INDEX

Reference to any part number listed (except Standard Parts such as Bolts, Nuts, Screws, Washers, Cotter Pins, Etc.) is provided in the Numerical Index. This index lists all part numbers in numerical sequence

and shows the page number and part type code under which each part is listed.

Standard Parts which are used as Major Parts are included in this Index.

## ORDERING PARTS BY MAIL

All replacement parts should be ordered on the standard parts order form No. 4615 (Part No. D-134) which is supplied upon request by Chrysler Corpora-

tion - Parts Division. Instructions for the use of this form will be found printed on the form.

## ORDERING PARTS BY TELEGRAM

Revised telegraph regulations now make it possible to specify actual part number digits at code word cost when ordering parts by telegram.

This will end the need for the Standard Code of "DAY OR NIGHT" which has heretofore been used for economy reasons in the transmission of telegraphic orders. It will simplify the composition of such orders, insure maximum accuracy and save the dealer's time, as well as our own, by eliminating the necessity for coding and decoding part numbers.

Therefore it is recommended that, effective immediately, part numbers be shown on telegraphic orders in digits instead of code words as formerly.

### MASTER CODE LETTERS

Telegraphic charges for coded-words or for numbers are made on the basis of one word for five code letters or one word for five digits in a number. If there are six to ten code letters in a code word or six to ten digits in a number, the charge will be made on the basis of two words in each case. For that reason, the Master Code Letters that identify the first digit of six digit numbers will be continued as follows:

|           |           |
|-----------|-----------|
| B-100,000 | K-600,000 |
| C-200,000 | M-700,000 |
| E-300,000 | R-800,000 |
| F-400,000 | L-900,000 |
| J-500,000 |           |

|              |              |
|--------------|--------------|
| Y-1,000,000  | YE-1,300,000 |
| YB-1,100,000 | YF-1,400,000 |
| YC-1,200,000 | YJ-1,500,000 |

Thus, if your telegram included more than one six-digit part number, you could economize by using the Master Code Letter in this manner:

K 05884 35885 37034 67423 69328.

The Master Code Letter "K" would indicate that the first digit in the succeeding five part numbers is "6" and the message, constituting the equivalent of six words, would be translated as follows:

605884 635885 637034 667423 669328.

Had the Master Code Letter "K" not been used and each of the six-digit part numbers sent in full, the above message would have been charged at the rate of ten words. Thus, the letter "K" effected a saving of four words.

Another example of the use of Master Code Letters:

|                      |                     |
|----------------------|---------------------|
| 32431 52789          | Y 59781 64329 72654 |
| 2 words              | 4 words             |
| YB 63356 74895 96543 |                     |
|                      | 4 words             |

## GENERAL INFORMATION - Cont'd

Here we have a charge for ten words which when translated would read:

32431 52789 1059781 1064329 1072654 1163356  
1174895 1196543:

The use of Master Code Letters "Y" and "YB" has resulted in a saving of four words.

When using Master Code Letters, as in the above messages, it is necessary that all part numbers be arranged in numerical sequence. The Master Code Letters should be used, obviously, only when there are two or more six-digit part numbers with the same first digit. With only one six-digit part number in a particular series, no saving would be effected by the use of the Master Code Letter because the Code Letter itself counts as one word.

The use of the Master Code Letters is especially economical in connection with long messages inasmuch as the telegraph companies now accept Day Letters and Night Letters containing code words or part numbers, as outlined above, at the regular Day Letter or Night Letter rates.

The following Utility Codes are continued for use in giving shipping instructions on telegraphic orders and for making telegraphic inquiries concerning part orders.

|       |  |
|-------|--|
| FAABW | Ship to us by air express  |
| FACAX | Ship to us by air mail   |
| FAADY | Ship to us by parcel post  |
| FACDA | Ship to us by parcel post - special delivery                           |
| FAAEZ | Ship to us by express  |
| FAAFA | Ship to us by freight  |
| FAAID | Ship to us by electric freight   |
| FAAJE | Ship to us by motor truck  |
| FAAKF | We will call and pick up parts   |
| FAAMH | Charge our account and ship by air express to _____                    |
| FACBY | Charge to our account and ship by air mail to _____                    |
| FAANI | Charge our account and ship by parcel post to _____                    |
| FACEB | Charge our account and ship by parcel post - special delivery to _____ |
| FAAOJ | Charge our account and ship by express to _____                        |
| FAASM | Charge our account and ship by freight to _____                        |
| FAAUO | Charge our account and ship by electric freight to _____               |
| FAAWR | Charge our account and ship by motor truck to _____                    |
| FAAYT | Charge our account and will be picked up by _____                      |

|       |  |
|-------|--|
| FABAW | Ship by air express C.O.D. to _____                    |
| FACZ  | Ship by air mail C.O.D. to _____                       |
| FABCY | Ship by parcel post C.O.D. to _____                    |
| FACFC | Ship by parcel post - special delivery C.O.D. to _____ |

|       |  |
|-------|--|
| FABEA | Ship by express C.O.D. to _____            |
| FABIE | Ship by freight S.D.B.L. to _____          |
| FABJF | Ship by electric freight S.D.B.L. to _____ |

|       |  |
|-------|--|
| FABLH | Will call and pick up parts C.O.D.                           |
| FABMI | When and how did (or will) you ship our order of (or number) |

|       |  |
|-------|--|
| FABOK | Cancel order for parts, our telegram of  |
| FABSM | Cancel order for parts, our order number |
| GAIMO | Ship to us by air freight                |

A sample of Night Letter is given below:

Chrysler Corp.  
Marysville, Mich.

FACDA two each 51019 70107 B 01263 01283 05721  
10839 11698 E 50780 50791 56124 57802 57806 FAABW  
for car 10106982 one each K 02454 08804 33297 36846  
39182 41684 FABMI 405

Blank Motor Co.

Translated this telegram would read:

Chrysler Corp.  
Marysville, Mich.

Ship to us by parcel post special delivery two each  
51019, 70107, 101263, 101283, 105721, 110839,  
111698, 350780, 350791, 356124, 357802, 357806.  
Ship to us by air express for car 10,106982 one each  
602454, 608804, 633297, 636846, 639182, 641684.  
When will you ship our order number 405?

Blank Motor Co.

The above Night Letter as coded is rated as 33 words. If the Master Code Letters had not been used it would have rated as 64 words.

Extreme care, should be used when writing coded telegrams, as orders received in code are shipped by the part number according to the translation of the code received.

## EMERGENCY ORDERS

All emergency orders for parts and/or accessories should be placed with Chrysler Motors Parts Corporation Depot or Parts Plant in the usual manner. All orders for scheduled prepaid shipment should be forwarded directly to the Parts Plant in the territory set up to serve you.

GENERAL INFORMATION - Cont'd

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**YOUR PARTS ORDERS**

Your orders will receive prompt handling and errors in processing will be reduced to a minimum if you will follow the instructions as outlined below:

1. Write orders legibly - preferably typewritten.
2. List all Part Numbers in numerical sequence.
3. Specify shipping instructions.
4. See that all orders are properly signed.
5. All orders placed on Scheduled Prepaid basis must be mailed on specified dates and should show in the space for shipping instructions "Freight Prepaid".
6. Only one order number should be assigned to an order, regardless of the number of pages or class of material.
7. Check Parts Book to be sure that part number and name on your order agree.
8. When in doubt regarding a part number, be sure to specify engine model, type and serial number when ordering.
9. All inquiries regarding orders should be addressed to the Parts Plant or Parts Depot to which the orders were sent.

**PARTS PLANTS**

ATLANTA, GEORGIA..... CHRYSLER MOTORS PARTS CORPORATION  
1150 Murphy Ave., S.W., Phone Amherst 2531

DELAWARE.....CHRYSLER CORPORATION, PARTS DIVISION  
Neward, Delaware

KANSAS CITY 15,  
KANSAS.....CHRYSLER MOTORS PARTS CORPORATION  
Chrysler and Funston Rds., Phone Fairvax 3300

MARYSVILLE..... CHRYSLER CORPORATION, PARTS DIVISION  
P.O. Box 1718, Detroit 31, Mich., Phone Port Huron 2-8561

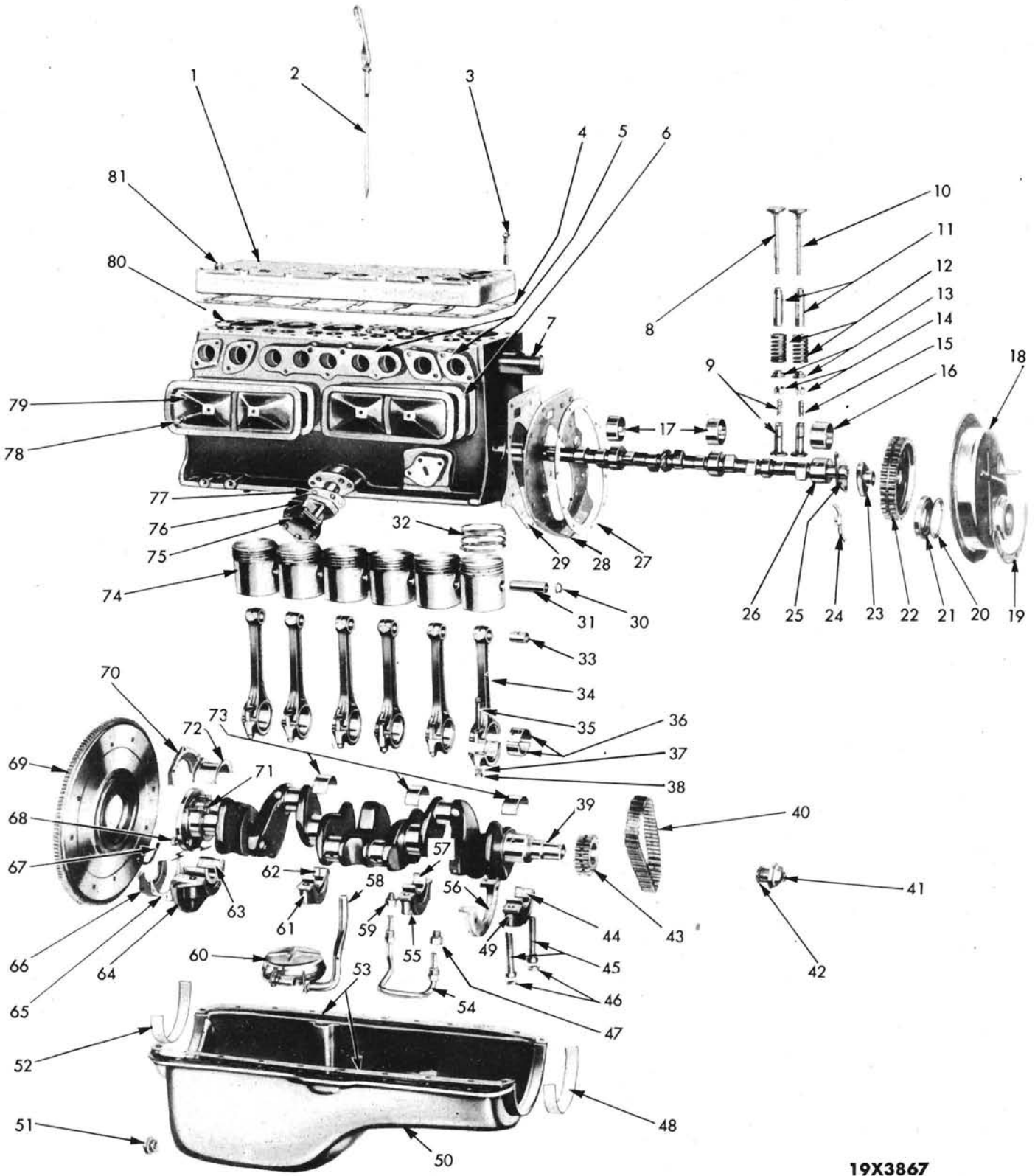
PACIFIC COAST.....CHRYSLER MOTORS CORPORATION  
1950 Davis St., San Leandro, Calif., Phone Sweetwood 6200

**TELEGRAMS TO DETROIT**

Telegrams intended for individuals or departments in the Parts Division Executive Offices in Detroit should be addressed as follows;

CHRYSLER CORPORATION - Parts Division  
ATTENTION of (Name of Individual or department)  
2985 E. Jefferson Ave.,  
Detroit, Michigan (Code PH)

# GROUP 9-ENGINE



19X3867

Plate 9-1

ENGINE (EXPLODED VIEW)

PLATE 9-1

ENGINE EXPLODED VIEW

| Ref. No. | Name                          | Part Type Code | Ref. No. | Name                            | Part Type Code |
|----------|-------------------------------|----------------|----------|---------------------------------|----------------|
| 1        | Head assembly . . . . .       | 9-03-4         | 42       | Washer . . . . .                | 9-07-10        |
| 2        | Indicator assembly . . . . .  | 10-03-4        | 43       | Sprocket . . . . .              | 9-08-5         |
| 3        | Stud . . . . .                | 9-03-10        | 44       | Bearing package . . . . .       | 9-09-2         |
| 4        | Gasket . . . . .              | 9-03-5         | 45       | Screw . . . . .                 | 9-10-19        |
| 5        | Gasket . . . . .              | 9-50-2         | 46       | Washer . . . . .                | 9-10-19        |
| 6        | Gasket . . . . .              | 9-40-4         | 47       | Nipple . . . . .                | 10-16-9        |
| 7        | Tube . . . . .                | 9-02-10        | 48       | Gasket . . . . .                | 10-24-6        |
| 8        | Valve . . . . .               | 9-39-5         | 49       | Cap . . . . .                   | 9-10-5         |
| 9        | Tappet assembly . . . . .     | 9-41-4         | 50       | Pan assembly . . . . .          | 10-24-4        |
| 10       | Valve . . . . .               | 9-39-6         | 51       | Plug . . . . .                  | 10-24-37       |
| 11       | Guide . . . . .               | 9-39-10        | 52       | Gasket . . . . .                | 10-24-7        |
| 12       | Spring . . . . .              | 9-39-15        | 53       | Gasket . . . . .                | 10-24-5        |
| 13       | Retainer . . . . .            | 9-39-16        | 54       | Pipe assembly . . . . .         | 10-16-4        |
| 14       | Lock . . . . .                | 9-39-17        | 55       | Cap . . . . .                   | 9-10-6         |
| 15       | Screw . . . . .               | 9-41-5         | 56       | Plate package . . . . .         | 10-24-2        |
| 16       | Bearing . . . . .             | 9-16-6         | 57       | Bearing package . . . . .       | 9-09-2         |
| 17       | Bearing . . . . .             | 9-16-6         | 58       | Pipe assembly . . . . .         | 10-18-4        |
| 18       | Cover assembly . . . . .      | 9-23-5         | 59       | Nipple . . . . .                | 10-16-9        |
| 19       | Reinforcement . . . . .       | 9-23-8         | 60       | Strainer assembly . . . . .     | 10-23-7        |
| 20       | Gasket . . . . .              | 9-23-21        | 61       | Cap . . . . .                   | 9-10-7         |
| 21       | Oil seal package . . . . .    | 9-23-1         | 62       | Bearing package . . . . .       | 9-09-2         |
| 22       | Sprocket . . . . .            | 9-17-5         | 63       | Bearing package . . . . .       | 9-09-2         |
| 23       | Hub . . . . .                 | 9-17-20        | 64       | Cap . . . . .                   | 9-10-8         |
| 24       | Tube . . . . .                | 9-19-3         | 65       | Gasket . . . . .                | 9-11-6         |
| 25       | Plate . . . . .               | 9-15-6         | 66       | Retainer assembly . . . . .     | 9-11-7         |
| 26       | Camshaft . . . . .            | 9-15-1         | 67       | Oil seal . . . . .              | 9-11-5         |
| 27       | Gasket . . . . .              | 9-23-17        | 68       | Nut . . . . . (*)               | 9-45-7         |
| 28       | Plate . . . . .               | 9-24-5         | 69       | Flywheel assembly . . . . . (*) | 9-45-1         |
| 29       | Gasket . . . . .              | 9-24-7         | 70       | Retainer assembly . . . . .     | 9-11-7         |
| 30       | Ring . . . . .                | 9-36-7         | 71       | Bolt . . . . . (*)              | 9-45-6         |
| 31       | Pin . . . . .                 | 9-36-5         | 72       | Bearing package . . . . .       | 9-09-2         |
| 32       | Ring . . . . .                | 9-35-5         | 73       | Bearing package . . . . .       | 9-09-2         |
| 33       | Bushing . . . . .             | 9-31-10        | 74       | Piston assembly . . . . .       | 9-34-5         |
| 34       | Rod assembly . . . . .        | 9-31-4         | 75       | Cover . . . . .                 | 10-08-2        |
| 35       | Bolt . . . . .                | 9-31-5         | 76       | Body . . . . .                  | 10-07-10       |
| 36       | Bearing package . . . . .     | 9-32-2         | 77       | Gasket . . . . .                | 10-07-11       |
| 37       | Washer . . . . .              | 9-31-8         | 78       | Screw . . . . .                 | 9-40-12        |
| 38       | Nut . . . . .                 | 9-31-7         | 79       | Cover . . . . .                 | 9-40-3         |
| 39       | Crankshaft assembly . . . . . | 9-07-5         | 80       | Seat . . . . .                  | 9-39-9         |
| 40       | Chain . . . . .               | 9-20-1         | 81       | Plug . . . . .                  | 9-03-4         |
| 41       | Jaw . . . . .                 | 9-07-8         |          |                                 |                |

\* See Parts Book Supplement.





PISTON RING PACKAGES (9-35-1)

Plate 9-2

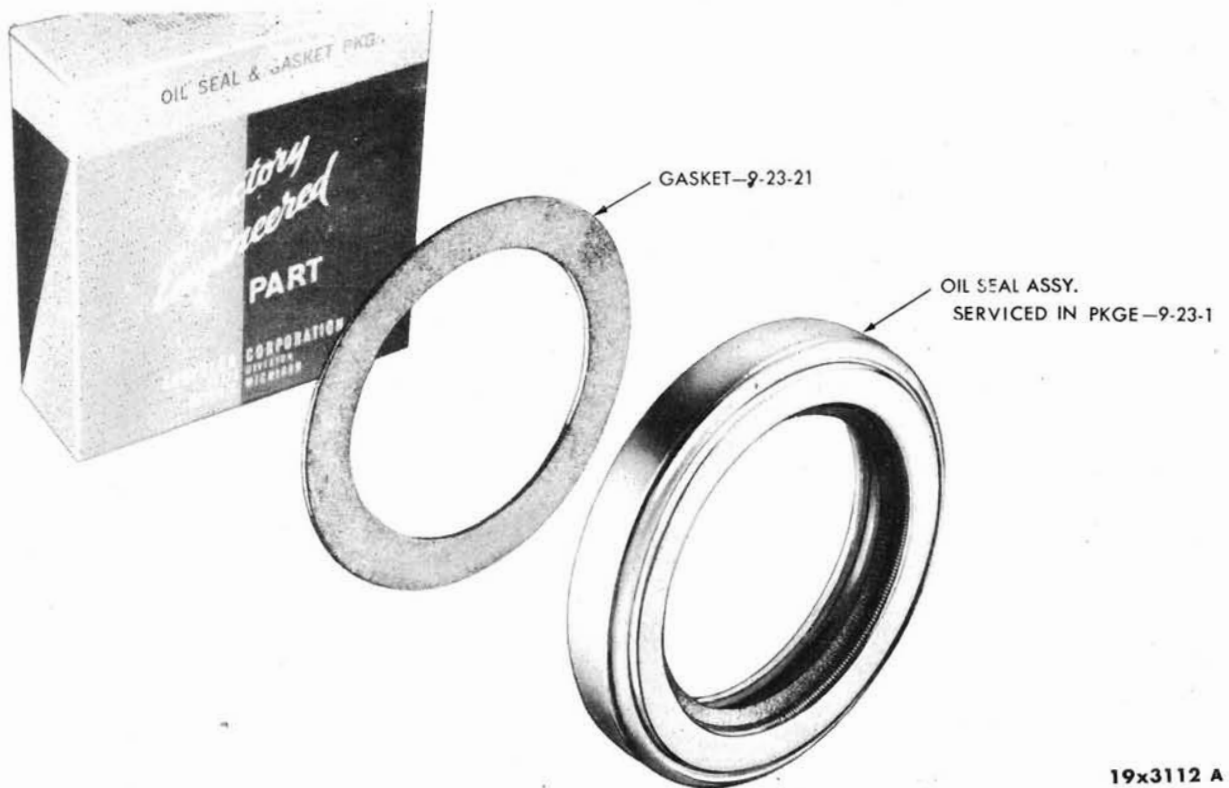


Plate 9-3 MOPAR CHAIN CASE OIL SEAL PACKAGE (9-23-1)

19x3112 A

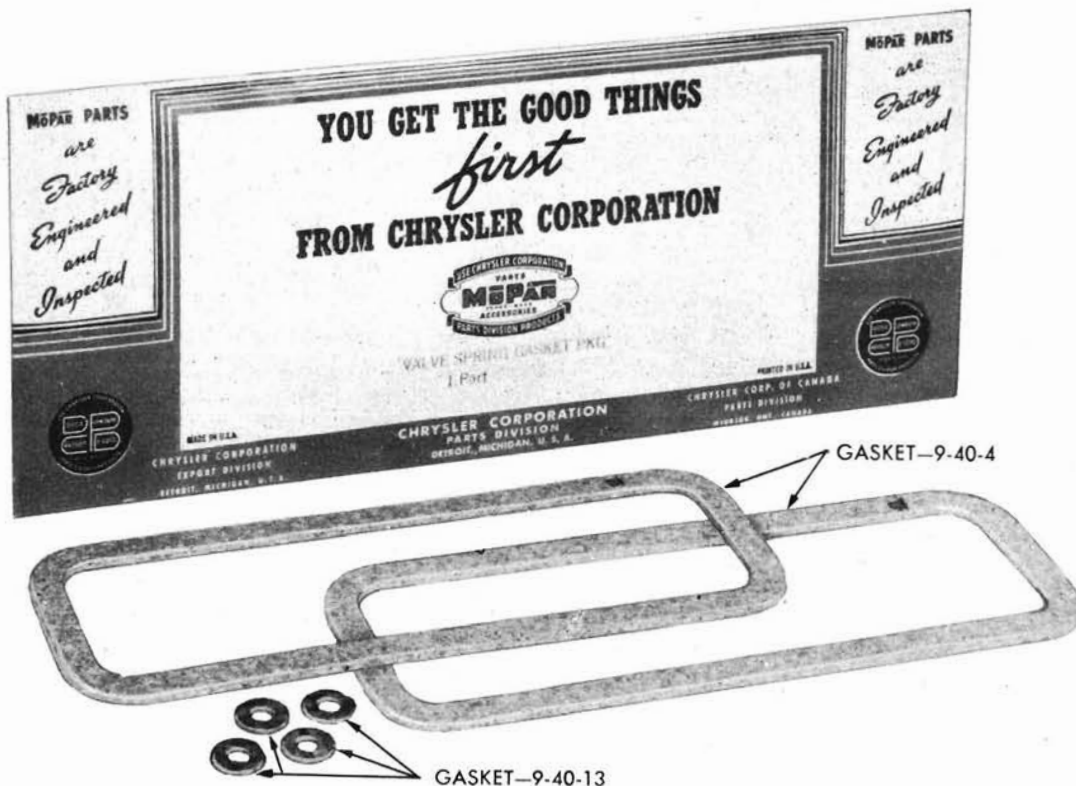
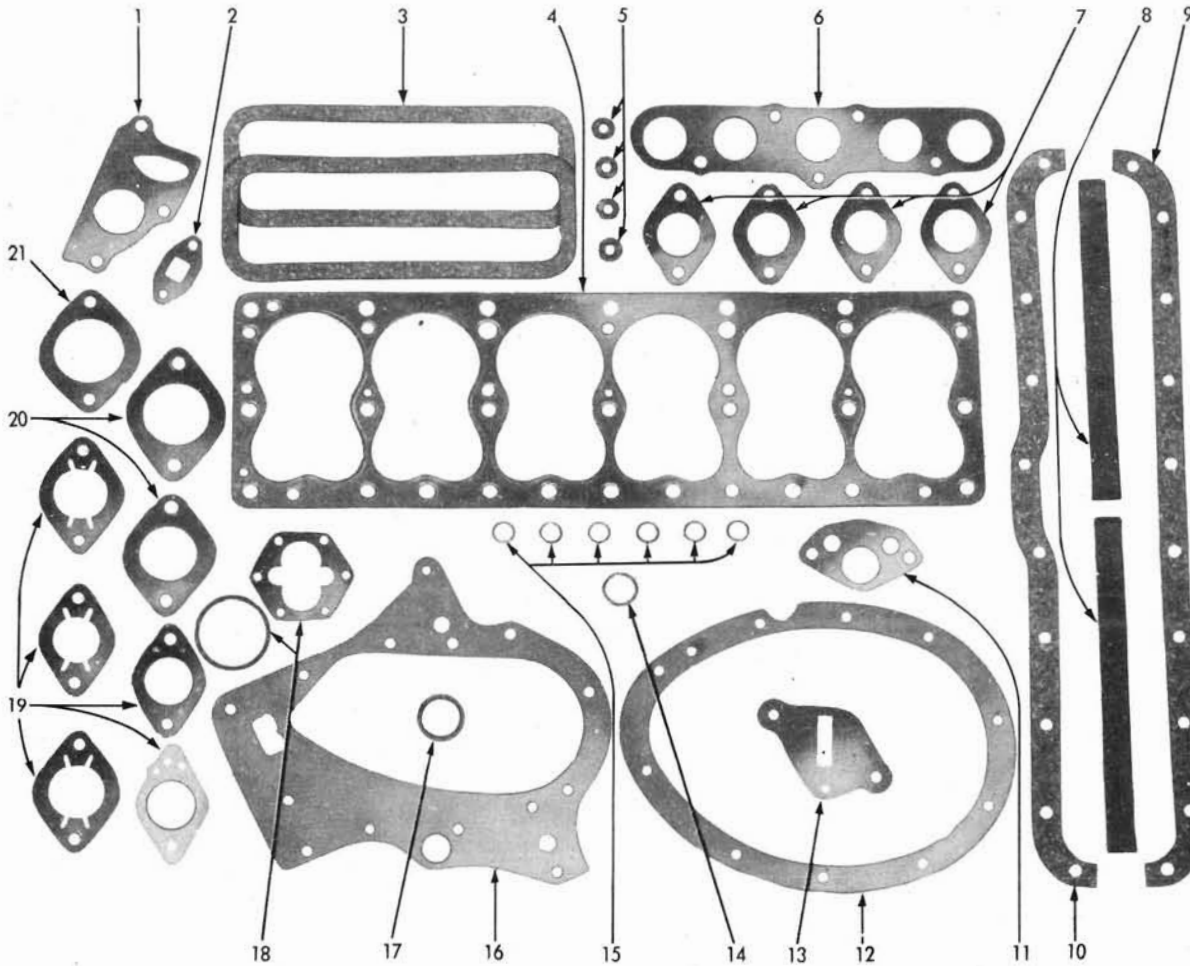


Plate 9-4 MOPAR VALVE SPRING COVER GASKET SET (9-40-1)

19x3116 C



| REF. NO. | NAME                                       | PART TYPE CODE     | REF. NO. | NAME                                      | PART TYPE CODE     |
|----------|--|--------------------|----------|---|--------------------|
| 1        | GASKET—(WATER PUMP BODY—TO CYLINDER BLOCK) | 7-44-4             | 12       | GASKET—(CHAIN CASE COVER)                 | 9-23-17            |
| 2        | GASKET—(WATER PUMP BY-PASS ELBOW)          | 7-48-16            | 13       | GASKET—(FUEL PUMP FLANGE)                 | 14-74-1            |
| 3        | GASKET—(VALVE SPRING COVER)                | 9-40-4             | 14       | GASKET—(OIL PAN DRAIN PLUG)               | 10-24-38           |
| 4        | GASKET—(CYLINDER HEAD)                     | 9-03-5             | 15       | GASKET—(SPARK PLUG)                       | 8-36-115           |
| 5        | GASKET—(VALVE SPRING COVER SCREW)          | 9-40-13            | 16       | GASKET—(CHAIN CASE COVER PLATE)           | 9-24-7             |
| 6        | GASKET—(MANIFOLD—CENTER)                   | 9-50-2             | 17       | GASKET—(OIL PRESSURE RELIEF VALVE CAP)    | 10-22-41           |
| 7        | GASKET—(MANIFOLD—END)                      | 9-50-2             | 18       | GASKET—(OIL PUMP COVER)                   | 10-08-3            |
| 8        | GASKET—(OIL PAN—FRONT AND REAR)            | 10-24-6<br>10-24-7 | 19       | GASKET—(CARBURETOR)                       | 14-34-2<br>14-34-4 |
| 9        | GASKET—(OIL PAN—LEFT)                      | 10-24-5            | 20       | GASKET—(EXHAUST PIPE FLANGE)              | 11-06-8            |
| 10       | GASKET—(OIL PAN—RIGHT)                     | 10-24-5            | 21       | GASKET—(CYLINDER HEAD WATER OUTLET ELBOW) | 9-05-6             |
| 11       | GASKET—(OIL PUMP TO CYLINDER BLOCK)        | 10-07-11           |          |   |                    |

19x1591A

CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-01-5

| PART<br>TYPE<br>CODE | PART NAME AND DESCRIPTION                         | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------------|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                      |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
|                      | <b>ENGINE GASKET SET</b>                          |          |             |         |        |         |        |         |        |         |
| 9-01-5               | SET, MoPar Engine Gasket . . . . .                | 1243 635 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                      | Consists of:                                      |          |             |         |        |         |        |         |        |         |
|                      | 1 - 637 191 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 637 192 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 561 378 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 651 213 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 600 752 Gasket, Chain Case Cover              |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1122 450 Gasket, Chain Case Cover             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 695 441 Gasket, Chain Case Cover Plate        |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1117 542 Gasket, Cylinder Head                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 679 023 Gasket, Exhaust Pipe Flange           |          |             |         |        |         |        |         |        |         |
|                      | 1 - 683 067 Gasket, Exhaust Pipe Flange           |          |             |         |        |         |        |         |        |         |
|                      | 1 - 688 482 Gasket, Fuel Pump Flange              |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1117 161 Gasket, Fuel Pump Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 601 275 Gasket, Manifold, Center              |          |             |         |        |         |        |         |        |         |
|                      | 4 - 318 042 Gasket, Manifold, End                 |          |             |         |        |         |        |         |        |         |
|                      | 1 - 105 456 Gasket, Oil Pan Drain Plug            |          |             |         |        |         |        |         |        |         |
|                      | 1 - 866 680 Gasket, Oil Pan, Front and Rear       |          |             |         |        |         |        |         |        |         |
|                      | 1 - 600 759 Gasket, Oil Pan, Left                 |          |             |         |        |         |        |         |        |         |
|                      | 1 - 600 758 Gasket, Oil Pan, Right                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 618 622 Gasket, Oil Pressure Relief Valve Cap |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1124 984 Gasket, Oil Pump Cover               |          |             |         |        |         |        |         |        |         |
|                      | 1 - 50 744 Gasket, Oil Pump Cover                 |          |             |         |        |         |        |         |        |         |
|                      | 1 - 866 724 Gasket, Oil Pump Cover                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 695 442 Gasket, Oil Pump to Cylinder Block    |          |             |         |        |         |        |         |        |         |
|                      | 6 - 150 189 Gasket, Spark Plug                    |          |             |         |        |         |        |         |        |         |
|                      | 2 - 871 934 Gasket, Valve Spring Cover            |          |             |         |        |         |        |         |        |         |
|                      | 4 - 693 959 Gasket, Valve Spring Cover Stud Nut   |          |             |         |        |         |        |         |        |         |
|                      | 1 - 50 082 Gasket, Water Outlet Elbow             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 622 772 Gasket, Water Pump By-Pass Elbow      |          |             |         |        |         |        |         |        |         |
|                      | 1 - 637 440 Gasket, Water Pump to Cylinder Block  |          |             |         |        |         |        |         |        |         |
|                      | SET, MoPar Engine Gasket . . . . .                | 1243 636 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                      | Consists of:                                      |          |             |         |        |         |        |         |        |         |
|                      | 1 - 637 191 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 637 192 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 562 221 Gasket, Carburetor Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 600 752 Gasket, Chain Case Cover              |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1122 450 Gasket, Chain Case Cover             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 695 441 Gasket, Chain Case Cover Plate        |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1113 745 Gasket, Cylinder Head                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 679 023 Gasket, Exhaust Pipe Flange           |          |             |         |        |         |        |         |        |         |
|                      | 1 - 683 051 Gasket, Exhaust Pipe Flange           |          |             |         |        |         |        |         |        |         |
|                      | 1 - 688 481 Gasket, Fuel Pump Flange              |          |             |         |        |         |        |         |        |         |
|                      | 1 - 688 482 Gasket, Fuel Pump Flange              |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1117 161 Gasket, Fuel Pump Flange             |          |             |         |        |         |        |         |        |         |
|                      | 1 - 666 353 Gasket, Manifold, Center              |          |             |         |        |         |        |         |        |         |
|                      | 4 - 666 354 Gasket, Manifold, End                 |          |             |         |        |         |        |         |        |         |
|                      | 1 - 105 456 Gasket, Oil Pan Drain Plug            |          |             |         |        |         |        |         |        |         |
|                      | 2 - 866 680 Gasket, Oil Pan, Front and Rear       |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1138 886 Gasket, Oil Pan, Left                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 665 802 Gasket, Oil Pan, Right                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 618 622 Gasket, Oil Pressure Relief Valve Cap |          |             |         |        |         |        |         |        |         |
|                      | 1 - 50 744 Gasket, Oil Pump Cover                 |          |             |         |        |         |        |         |        |         |
|                      | 1 - 1124 984 Gasket, Oil Pump Cover               |          |             |         |        |         |        |         |        |         |
|                      | 1 - 863 724 Gasket, Oil Pump Cover                |          |             |         |        |         |        |         |        |         |
|                      | 1 - 695 442 Gasket, Oil Pump to Cylinder Block    |          |             |         |        |         |        |         |        |         |

\* Indicates - use as required.  
Printed in U. S. A.

Prices and specifications subject to change without notice.

CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-01-5 to 9-02-5

| PART TYPE CODE                    | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |  |
|-----------------------------------|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|--|
|                                   |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |  |
| <b>ENGINE GASKET SET - Cont'd</b> |   |          |             |         |        |         |        |         |        |         |  |
| 9-01-5                            | SET, MoPar Engine Gasket - Cont'd. . . . .  | 1243 636 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |  |
|                                   | Consists of: - Cont'd   |          |             |         |        |         |        |         |        |         |  |
|                                   | 6 - 150 189 Gasket, Spark Plug  |          |             |         |        |         |        |         |        |         |  |
|                                   | 2 - 871 935 Gasket, Valve Spring Cover  |          |             |         |        |         |        |         |        |         |  |
|                                   | 4 - 693 959 Gasket, Valve Spring Cover Stud Nut   |          |             |         |        |         |        |         |        |         |  |
|                                   | 1 - 50 082 Gasket, Water Outlet Elbow   |          |             |         |        |         |        |         |        |         |  |
|                                   | 1 - 622 772 Gasket, Water Pump By-Pass Elbow  |          |             |         |        |         |        |         |        |         |  |
|                                   | 1 - 637 440 Gasket, Water Pump to Cylinder Block  |          |             |         |        |         |        |         |        |         |  |
| <b>CYLINDER BLOCK ASSEMBLY</b>    |   |          |             |         |        |         |        |         |        |         |  |
|                                   | Note 1. Cylinder Block Assemblies include Pistons, Pins and Rings fitted, Main Bearing Caps, Valve Guides, Exhaust Valve Seats and Camshaft Bearings, but do not include Main Bearings.   |          |             |         |        |         |        |         |        |         |  |
|                                   | Note 2. Engines equipped with Sodium Cooled Exhaust Valves are identified by the letter "S" following the block number stamped on a boss on the cylinder block directly above the generator, and also by a brass plate under the rear valve spring cover. |          |             |         |        |         |        |         |        |         |  |
|                                   | <b>IMPORTANT: Always check ENGINE SERIAL NUMBER before ordering Cylinder Block Assemblies.</b>  |          |             |         |        |         |        |         |        |         |  |
| 9-02-5                            | BLOCK, Cylinder, Assembly (up to engine serial No. 4166) . . . . .  | 1115 115 | 1           | -       | -      | -       | -      | -       | -      | -       |  |
|                                   | BLOCK, Cylinder, Assembly (from engine serial No. 4166 to 25142) . . . . .  | 1124 232 | 1           | -       | -      | -       | -      | -       | -      | -       |  |
|                                   | BLOCK, Cylinder, Assembly (after engine serial No. 25142 on Ind. 5) . . . . .   | 1142 135 | 1           | 1       | -      | -       | -      | -       | -      | -       |  |
|                                   | BLOCK, Cylinder, Assembly . . . . .   | 1122 511 | -           | -       | 1      | 1       | -      | -       | -      | -       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with regular valves) (up to engine serial No. 50000 on Ind. 7A and 8A) . . . . .  | 1122 906 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with regular valves and full flow oil filter) (after engine serial No. 50000) . . . . .   | 1314 594 | -           | -       | -      | -       | -      | 1       | -      | 1       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with regular valves and by-pass type oil filter) (after engine serial No. 50000) . . . . .  | 1315 574 | -           | -       | -      | -       | -      | 1       | -      | 1       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with sodium cooled valves) (up to engine serial No. 12495 on Ind. 7, and 1526 on Ind. 8) . . . . .  | 1118 436 | -           | -       | -      | -       | 1      | -       | 1      | -       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with sodium cooled valves) (after engine serial No. 12495 on Ind. 7 and 1526 on Ind. 8; up to engine serial No. 50000 on Ind. 7A and 8A) . . . . .  | 1122 905 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with sodium cooled valves and full flow oil filter) (after engine serial No. 50000) . . . . .   | 1315 571 | -           | -       | -      | -       | -      | 1       | -      | 1       |  |
|                                   | BLOCK, Cylinder, Assembly (for engines equipped with sodium cooled valves and by-pass type oil filter) (after engine serial No. 50000) . . . . .  | 1315 556 | -           | -       | -      | -       | -      | 1       | -      | 1       |  |
|                                   | Attaching Standard Parts  |          |             |         |        |         |        |         |        |         |  |
|                                   | Drain cock, type C, br., pln., 1/4 in. pipe thd. . . . .  | 103 647  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |  |
|                                   | Plug, pipe, sq-hd., solid, C.I., cd-pltd., 1/8-27 taper pipe thd. (oil hole) . . . . .  | 143 932  | 4           | 4       | 4      | 4       | 4      | 4       | 4      | 4       |  |

\* Indicates - use as required.  
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Prices and specifications subject to change without notice.

ENGINE - Cont'd

CODE 9-02-7 to 9-03-11

| PART<br>TYPE<br>CODE                    | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CYLINDER BLOCK ASSEMBLY - Cont'd</b> |   |          |             |         |        |         |        |         |        |         |
| Attaching Standard Parts - Cont'd       |   |          |             |         |        |         |        |         |        |         |
|   | Plug, expansion, S., pln., 1 5/8 in. x .083 thk. (core hole) .  | 117 924  | 5           | 5       | 5      | 5       | 5      | 5       | 5      | 5       |
|   | Plug, expansion, br., pln., 1 5/8 in. x .083 thk. (core hole).  | 140 802  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|   | Plug, expansion, S., pln., 1 3/8 in. x .083 thk. (rear face) .  | 117 923  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | Plug, expansion, S., pln., 1 3/8 in. x .083 thk. (camshaft bearing) . . . . .   | 117 923  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Plug, pipe, ck-hdls., S., pln., 3/8-18 taper pipe thd. (oil distributor hole) . . . . .                               | 143 162  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|   | Plug, pipe, slotted, hdls., S., pln., 1/8-27 taper pipe thd. (used with 1314 594 and 1315 571 block assemblies) . . . | 103 883  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | Plug, sq-hd., solid, C.I., cd-pltd., 1/4-18 taper pipe thd. (used with 1314 594 and 1315 571 block assemblies) . . .  | 143 933  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-02-7                                  | DOWEL, Cylinder Block to Clutch Housing (S., .496 diam. x 3/4 in. lgh.) . . . . .                                     | 1122 532 | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 9-02-10                                 | TUBE, Cylinder Block Water Distributor . . . . .  | 1120 672 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | TUBE, Cylinder Block Water Distributor . . . . .  | 954 281  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-02-17                                 | PLUG, Cylinder Block Oil Hole By-Pass (used with 1315 574 and 1315 571 block assemblies) . . . . .                    | 1119 207 | -           | -       | -      | -       | -      | 1       | -      | 1       |
| <b>CYLINDER HEAD</b>                    |   |          |             |         |        |         |        |         |        |         |
| 9-03-4                                  | HEAD, Cylinder, w/Core Hole PLUG, Assembly . . . . .  | 1116 732 | 1           | 1       | -      | -       | -      | -       | -      | -       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (up to engine serial No. 50000 on Ind. 6A) . . . . .                       | 1120 795 | -           | -       | 1      | 1       | -      | -       | -      | -       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (after engine serial No. 50000) . . . . .                                  | 1311 816 | -           | -       | -      | 1       | -      | -       | -      | -       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (up to engine serial No. 50000 on Ind. 7A) . . . . .                       | 1120 796 | -           | -       | -      | -       | 1      | 1       | -      | -       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (after engine serial No. 50000) . . . . .                                  | 1313 823 | -           | -       | -      | -       | -      | 1       | -      | -       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (up to engine serial No. 50000 on Ind. 8A) . . . . .                       | 1122 901 | -           | -       | -      | -       | -      | -       | 1      | 1       |
|   | HEAD, Cylinder, w/Core Hole PLUG, Assembly (after engine serial No. 50000) . . . . .                                  | 1314 378 | -           | -       | -      | -       | -      | -       | -      | 1       |
| Attaching Standard Parts                |   |          |             |         |        |         |        |         |        |         |
|   | Bolt, hex-hd., S., cd-pltd., 3/8-16 x 1/2 in. . . . .   | 121 852  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Plug, pipe, sq-hd., hollow, C.I. pln., 1/2-14 taper pipe thd. (radimeter hole) . . . . .                              | 103 868  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Plug, pipe, sq-hd., hollow, C.I., pln., 3/8-18 taper pipe thd. (heater hole) . . . . .                                | 103 867  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Plug, pipe, sq-hd., solid, C.I., cd-pltd., 1/8-27 taper pipe thd. (timing hole) . . . . .                             | 143 932  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Plug, expansion, S., pln., 1 3/16 in. x .083 thk. (core hole) .   | 117 921  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | Plug, expansion, S., pln., 1 3/8 in. x .083 thk. (core hole) .  | 117 923  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-03-5                                  | GASKET, Cylinder Head (cop. and asb.) . . . . .   | 1117 542 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | GASKET, Cylinder Head (cop. and asb.) . . . . .   | 1113 745 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-03-10                                 | STUD, Cylinder Head (S., 7/16-14 (25/32) x 3 11/16 x 7/16-20 (3/4 in.)) . . . . .                                     | 640 723  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| Attaching Standard Part                 |   |          |             |         |        |         |        |         |        |         |
|   | Washer, plain, small, S., cd-pltd., 7/16 in. . . . .  | 120 395  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 9-03-11                                 | NUT, Cylinder Head Stud (hex., S., cd-pltd., 7/16 in. - 20) (2-10-23) . . . . .                                       | 601 014  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-03-13 to 9-09-2

| PART TYPE CODE  | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CYLINDER HEAD - Cont'd</b>   |  |          |             |         |        |         |        |         |        |         |
| 9-03-13   | WASHER, Cylinder Head Screw Hole Plug Lock (external teeth, .377 I.D.) (14-14-21) . . . . .        | 1319 068 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-03-15   | SCREW, Cylinder Head (untapped hex-hd., S., 7/16-14 x 2 13/16 in.) . . . . .                       | 666 014  | 4           | 4       | 4      | 4       | 4      | 4       | 4      | 4       |
|   | SCREW, Cylinder Head (tapped hex-hd., S., 7/16-14 x 2 13/16, 3/8 in.-24 tapped hd. thd.) . . . . . | 692 857  | 15          | 15      | 15     | 15      | 15     | 15      | 15     | 15      |
| <b>CRANKSHAFT</b>   |  |          |             |         |        |         |        |         |        |         |
| 9-07-5  | CRANKSHAFT, w/Pilot BUSHING, Assembly . . . . .  | 952 066  | 1           | 1       | -      | -       | -      | -       | -      | -       |
|   | CRANKSHAFT, w/Pilot BUSHING, Assembly . . . . .  | 870 001  | -           | -       | 1      | 1       | -      | -       | -      | -       |
|   | CRANKSHAFT, w/Pilot BUSHING, Assembly . . . . .  | 870 716  | -           | -       | -      | -       | 1      | 1       | -      | -       |
|   | CRANKSHAFT, w/Pilot BUSHING, Assembly . . . . .  | 870 745  | -           | -       | -      | -       | -      | -       | 1      | 1       |
| 9-07-8  | JAW, Crankshaft Starting . . . . .   | 583 801  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-07-10   | WASHER, Crankshaft Starting Jaw Lock (S., external teeth, 1.142 I.D. x 1.827 O.D.) . . . . .       | 655 116  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-07-12   | BUSHING, Crankshaft Pilot (bz.) . . . . .  | 53 298   | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>CRANKSHAFT GEAR OR SPROCKET</b>  |  |          |             |         |        |         |        |         |        |         |
| 9-08-5  | SPROCKET, Crankshaft (19 teeth, 3.038 pitch diam.) . . . . .                                       | 601 760  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Attaching Standard Part  |          |             |         |        |         |        |         |        |         |
|   | Key, Woodruff, ni-S., 1/4 x 7/8 in. . . . .  | 124 551  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-08-7  | SHIM, Crankshaft Sprocket (S., 1 37/64 I.D. x 1 7/8 in. O.D., .003 thk.) . . . . .                 | 537 820  | *           | *       | *      | *       | *      | *       | *      | *       |
|   | SHIM, Crankshaft Sprocket (S., 1 37/64 I.D. x 1 7/8 in. O.D., .010 thk.) . . . . .                 | 537 821  | *           | *       | *      | *       | *      | *       | *      | *       |
| <b>CRANKSHAFT BEARINGS</b>  |  |          |             |         |        |         |        |         |        |         |
| <p>Note: A Crankshaft Bearing Package contains one upper and lower bearing half.</p> <p>IMPORTANT: Crankshaft Bearings should ALWAYS be replaced in PAIRS. Never use a new bearing half with an old bearing half.</p> |  |          |             |         |        |         |        |         |        |         |
| 9-09-2  | PACKAGE, Crankshaft Bearing, No. 1 (std.) . . . . .  | 1238 432 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.001 undersize) . . . . .                                      | 1238 435 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.002 undersize) . . . . .                                      | 1238 438 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.003 undersize) . . . . .                                      | 1238 532 | 1           | 1       | -      | -       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.010 undersize) . . . . .                                      | 1238 441 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.012 undersize) . . . . .                                      | 1238 444 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.020 undersize) . . . . .                                      | 1311 071 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.030 undersize) . . . . .                                      | 1311 072 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 1 (.040 undersize) . . . . .                                      | 1311 073 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (std.) . . . . .   | 1238 448 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.001 undersize) . . . . .                                 | 1238 450 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.002 undersize) . . . . .                                 | 1238 452 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.010 undersize) . . . . .                                 | 1238 454 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |

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ENGINE - Cont'd

CODE 9-09-2

| PART TYPE CODE  | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CRANKSHAFT BEARINGS - Cont'd</b>   |  |          |             |         |        |         |        |         |        |         |
| 9-09-2  | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.012 undersize) . . . . . | 1238 456 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.020 undersize) . . . . . | 1311 111 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.030 undersize) . . . . . | 1311 112 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 1-2-3 (.040 undersize) . . . . . | 1311 113 | -           | -       | -      | -       | 3      | 3       | 3      | 3       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (std.) . . . . .             | 1238 433 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.001 undersize) . . . . .   | 1238 436 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.002 undersize) . . . . .   | 1238 439 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.003 undersize) . . . . .   | 1238 533 | 2           | 2       | -      | -       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.010 undersize) . . . . .   | 1238 442 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.012 undersize) . . . . .   | 1238 445 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.020 undersize) . . . . .   | 1311 074 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.030 undersize) . . . . .   | 1311 075 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, Nos. 2-3 (.040 undersize) . . . . .   | 1311 076 | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (std.) . . . . .                | 1238 434 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.001 undersize) . . . . .      | 1238 437 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.002 undersize) . . . . .      | 1238 440 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.003 undersize) . . . . .      | 1238 534 | 1           | 1       | -      | -       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.010 undersize) . . . . .      | 1238 443 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.012 undersize) . . . . .      | 1238 446 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.020 undersize) . . . . .      | 1311 082 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.030 undersize) . . . . .      | 1311 083 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.040 undersize) . . . . .      | 1311 084 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (std.) . . . . .                | 1238 449 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.001 undersize) . . . . .      | 1238 451 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.002 undersize) . . . . .      | 1238 453 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.010 undersize) . . . . .      | 1238 455 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.012 undersize) . . . . .      | 1238 457 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.020 undersize) . . . . .      | 1311 114 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.030 undersize) . . . . .      | 1311 115 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PACKAGE, Crankshaft Bearing, No. 4 (.040 undersize) . . . . .      | 1311 116 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| <b>CRANKSHAFT BEARING CAPS, STUDS AND PARTS</b>   |  |          |             |         |        |         |        |         |        |         |
| <p>Note: Crankshaft Bearing Caps are line reamed to each individual engine at the factory; therefore are not interchangeable. Replacement caps are supplied with stud holes reamed 1/64 in. larger and the overall length 1/16 in. shorter and must be fitted by shimming or removing metal from face of caps as required when line reaming is not available.</p> |  |          |             |         |        |         |        |         |        |         |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-10-5 to 9-11-1

| PART<br>TYPE<br>CODE                              | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CRANKSHAFT BEARING CAPS, STUDS AND PARTS -</b> |   |          |             |         |        |         |        |         |        |         |
| <b>Cont'd</b>                                     |   |          |             |         |        |         |        |         |        |         |
| 9-10-5  | CAP, Crankshaft Bearing, No. 1 . . . . .  | 630 476  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | CAP, Crankshaft Bearing, No. 1 . . . . .  | 664 390  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-10-6  | CAP, Crankshaft Bearing, No. 2 . . . . .  | 630 477  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | CAP, Crankshaft Bearing, No. 2 . . . . .  | 664 065  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-10-7  | CAP, Crankshaft Bearing, No. 3 (9-10-6) . . . . .   | 630 477  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | CAP, Crankshaft Bearing, No. 3 (9-10-6) . . . . .   | 664 065  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-10-8  | CAP, Crankshaft Bearing, No. 4 . . . . .  | 992 552  | 1           | 1       | -      | -       | -      | -       | -      | -       |
|   | CAP, Crankshaft Bearing, No. 4 . . . . .  | 891 401  | -           | -       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-10-19   | SCREW, Crankshaft Bearing Cap (hex-hd., S., 1/2-13<br>x 2 15/16 in.) . . . . .  | 864 118  | 8           | 8       | 8      | 8       | 8      | 8       | 8      | 8       |
|   | Attaching Standard Part   |          |             |         |        |         |        |         |        |         |
|   | Washer, lock, med., S., cd-pltd., 1/2 in. . . . .   | 120 384  | 8           | 8       | 8      | 8       | 8      | 8       | 8      | 8       |
| 9-10-22   | GASKET, Crankshaft Rear Bearing Cap, Right (rubber) . .   | 954 393  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | GASKET, Crankshaft Rear Bearing Cap, Left (rubber) . .  | 954 392  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | GASKET, Crankshaft Rear Bearing Cap, Right (rubber)<br>(up to engine serial No. 15028 on Ind. 7, and 3129<br>on Ind. 8) . . . . . | 863 012  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|   | GASKET, Crankshaft Rear Bearing Cap, Left (rubber)<br>(up to engine serial No. 15028 on Ind. 7, and 3129 on<br>Ind. 8) . . . . .  | 863 013  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|   | GASKET, Crankshaft Rear Bearing Cap, Right (rubber)<br>(after engine serial No. 15028 on Ind. 7, and 3129 on<br>Ind. 8) . . . . . | 1116 708 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | GASKET, Crankshaft Rear Bearing Cap, Left (rubber)<br>(after engine serial No. 15028 on Ind. 7, and 3129 on<br>Ind. 8) . . . . .  | 1116 709 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| <b>CRANKSHAFT BEARING OIL SEALS</b>               |   |          |             |         |        |         |        |         |        |         |
| 9-11-1  | PACKAGE, MoPar Crankshaft Rear Bearing Oil Seal . . .   | 996 350  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | Consists of:  |          |             |         |        |         |        |         |        |         |
|   | 1 - 954 392 Gasket, Bearing Cap, Left   |          |             |         |        |         |        |         |        |         |
|   | 1 - 954 393 Gasket, Bearing Cap, Right  |          |             |         |        |         |        |         |        |         |
|   | 2 - 633 298 Gasket, Bearing Oil Seal  |          |             |         |        |         |        |         |        |         |
|   | 2 - 642 978 Oil Seal, Bearing   |          |             |         |        |         |        |         |        |         |
|   | PACKAGE, MoPar Crankshaft Rear Bearing Oil Seal<br>(up to engine serial No. 15028 on Ind. 7, and 3129<br>on Ind. 8) . . . . .     | 891 458  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|   | Consists of:  |          |             |         |        |         |        |         |        |         |
|   | 1 - 863 013 Gasket, Bearing Cap, Left   |          |             |         |        |         |        |         |        |         |
|   | 1 - 863 012 Gasket, Bearing Cap, Right  |          |             |         |        |         |        |         |        |         |
|   | 2 - --- --- Retainer, Bearing Oil Seal, w/Oil Seal,<br>Assembly   |          |             |         |        |         |        |         |        |         |

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ENGINE - Cont'd

CODE 9-11-1 to 9-19-3

| PART<br>TYPE<br>CODE                         | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CRANKSHAFT BEARING OIL SEALS - Cont'd</b> |  |          |             |         |        |         |        |         |        |         |
| 9-11-1                                       | PACKAGE, MoPar Crankshaft Rear Bearing Oil Seal<br>(after engine serial No. 15028 on Ind. 7, and 3129<br>on Ind. 8) . . . . .                                  | 1064 942 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 1 - 1116 709 Gasket, Bearing Cap, Left   |          |             |         |        |         |        |         |        |         |
|  | 1 - 1116 708 Gasket, Bearing Cap, Right  |          |             |         |        |         |        |         |        |         |
|  | 1 - ---- Oil Seal, Bearing, Assembly   |          |             |         |        |         |        |         |        |         |
| 9-11-5                                       | OIL SEAL, Crankshaft Rear Bearing . . . . .  | 642 978  | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
| 9-11-6                                       | GASKET, Crankshaft Rear Bearing Oil Seal (treated<br>fibre board) . . . . .  | 633 298  | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
| 9-11-7                                       | RETAINER, Crankshaft Rear Bearing Oil Seal, w/OIL<br>SEAL, Assembly. . . . .   | 642 976  | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
| 9-11-8                                       | SCREW, Crankshaft Rear Bearing Oil Seal Retainer<br>(hex-hd., S., 1/4-20 x 3/8 in.) (up to engine serial<br>No. 15028 on Ind. 7, and 3129 on Ind. 8) . . . . . | 44 650   | 6           | 6       | 6      | 6       | 6      | -       | 6      | -       |
|  | Attaching Standard Part  |          |             |         |        |         |        |         |        |         |
|  | Washer, lock, external teeth, S., cd-pltd., 1/4 in. . . . .  | 121 753  | 6           | 6       | 6      | 6       | 6      | -       | 6      | -       |
| <b>CAMSHAFT</b>                              |  |          |             |         |        |         |        |         |        |         |
| 9-15-1                                       | CAMSHAFT . . . . .   | 869 997  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | CAMSHAFT . . . . .   | 1067 201 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-15-6                                       | PLATE, Camshaft Sprocket Hub Thrust . . . . .  | 600 786  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|  | Bolt, hex-hd., S., cd-pltd., 5/16-18 x 3/4 in. . . . .   | 122 007  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|  | Washer, lock, med., S., cd-pltd., 5/16 in. . . . .   | 120 214  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| <b>CAMSHAFT BEARINGS</b>                     |  |          |             |         |        |         |        |         |        |         |
| 9-16-6                                       | BEARING, Camshaft, No. 1 . . . . .   | 632 465  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | BEARING, Camshaft, No. 2 . . . . .   | 632 466  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | BEARING, Camshaft, No. 2 . . . . .   | 665 786  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | BEARING, Camshaft, No. 3 . . . . .   | 632 467  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | BEARING, Camshaft, No. 3 . . . . .   | 665 787  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| <b>CAMSHAFT GEAR OR SPROCKET</b>             |  |          |             |         |        |         |        |         |        |         |
| 9-17-5                                       | SPROCKET, Camshaft . . . . .   | 601 757  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Attaching Standard Part  |          |             |         |        |         |        |         |        |         |
|  | Key, Woodruff, Carbon S., 5/32 x 7/8 in. . . . .   | 114 813  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-17-9                                       | SCREW, Camshaft Sprocket (hex-hd., S., 5/16-18 x<br>3/4 in.) . . . . .   | 601 766  | 3           | 3       | 3      | 3       | 3      | 3       | 3      | 3       |
|  | Attaching Standard Part  |          |             |         |        |         |        |         |        |         |
|  | Washer, lock, med., S., cd-pltd., 5/16 in. . . . .   | 120 214  | 3           | 3       | 3      | 3       | 3      | 3       | 3      | 3       |
| 9-17-20                                      | HUB, Camshaft Sprocket . . . . .   | 869 998  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>CAMSHAFT GEAR OR SPROCKET OIL TUBE</b>    |  |          |             |         |        |         |        |         |        |         |
| 9-19-3                                       | TUBE, Camshaft Sprocket Oil (3/16 in. O.D.) . . . . .  | 600 787  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-20-1 to 9-23-21

| PART TYPE CODE   | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CAMSHAFT GEAR OR SPROCKET OIL TUBE -</b>  |   |          |             |         |        |         |        |         |        |         |
| Cont'd   |   |          |             |         |        |         |        |         |        |         |
| Attaching Standard Parts   |   |          |             |         |        |         |        |         |        |         |
|  | Clip, tubing, closed type, S., cd-pltd., 3/16 tube diam., 1/4 in. bolt size)  | 120 520  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Screw, fil-hd., slotted, S., cd-pltd., 1/4-20 x 5/8 in. . .   | 132 259  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Washer, lock, med., S., cd-pltd., 1/4 in. . . . .   | 120 380  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>TIMING CHAIN</b>  |   |          |             |         |        |         |        |         |        |         |
| 9-20-1   | CHAIN, Timing . . . . .   | 1075 001 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>CHAIN CASE COVER</b>  |   |          |             |         |        |         |        |         |        |         |
| Note 1. Up to engine serial No. 9411 on Ind. 5, 7562 on Ind. 6, 13396 on Ind. 7, and 2568 on Ind. 8. |   |          |             |         |        |         |        |         |        |         |
| Note 2. After engine serial No. 9411 on Ind. 5, 7562 on Ind. 6, 13396 on Ind. 7, and 2568 on Ind. 8. |   |          |             |         |        |         |        |         |        |         |
| 9-23-1   | PACKAGE, MoPar Chain Case Cover Oil Seal and Gasket . . . . .   | 1064 730 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| Consists of:   |   |          |             |         |        |         |        |         |        |         |
| 1 - 1088 603 Gasket, Oil Seal  |   |          |             |         |        |         |        |         |        |         |
| 1 - --- --- Oil Seal, Assembly   |   |          |             |         |        |         |        |         |        |         |
| 9-23-5   | COVER, Chain Case, w/OIL SEAL and GASKET, Assembly (also specify (8) 1123 371 screws and (3) 1123 372 washers - see note 1) . . . . . | 1122 447 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| Attaching Standard Parts   |   |          |             |         |        |         |        |         |        |         |
|  | Bolt, hex-hd., S., cd-pltd., 5/16-24 x 3/4 in. . . . .  | 120 741  | 3           | 3       | 3      | 3       | 3      | 3       | 3      | 3       |
|  | Bolt, hex-hd., S., cd-pltd., 5/16-18 x 1 in. (see note 1) .   | 122 017  | 8           | -       | 6      | -       | 7      | -       | 7      | -       |
|  | Bolt, hex-hd., S., cd-pltd., 5/16-18 x 1 1/4 in. (see note 1) . . . . .   | 122 027  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Nut, hex., std., s-fin., S., cd-pltd., 5/16 in.-24 . . . .  | 120 368  | 3           | 3       | 5      | 5       | 3      | 3       | 3      | 3       |
|  | Stud, S., pln., 5/16-18 (1/2) x 1 1/4 x 5/16-24 (9/16 in.) (see note 1) . . . . .   | 103 173  | -           | -       | 2      | -       | -      | -       | -      | -       |
|  | Washer, lock, med., S., cd-pltd., 5/16 in. . . . .  | 120 214  | 3           | 3       | 5      | 5       | 4      | 4       | 4      | 4       |
|  | Washer, lock, external teeth, S., cd-pltd., 5/16 in. . . .  | 138 485  | 8           | 8       | 6      | 6       | 7      | 7       | 7      | 7       |
| 9-23-8   | REINFORCEMENT, Chain Case Cover (see note 1) . . . .  | 690 939  | 1           | -       | 1      | -       | 1      | -       | 1      | -       |
| 9-23-10  | SCREW, Chain Case Cover, w/WASHER, Assembly (hex-hd., S., 5/16-18 x 1 in., dished washer) (see note 2) . .                            | 1123 371 | 8           | 8       | 8      | 8       | 8      | 8       | 8      | 8       |
| 9-23-12  | WASHER, Chain Case Cover Bolt (S., .332 I.D. x 13/16 O.D., .081 thk.) (used with 120 741 bolt) . . . . .                              | 1123 372 | 3           | 3       | 3      | 3       | 3      | 3       | 3      | 3       |
| 9-23-13  | GASKET, Chain Case Cover Bolt (annular, cop. and asb., type A, .322 I.D., x 7/16 O.D., 5/64 in. thk.) . . . . .                       | 114 622  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-23-17  | GASKET, Chain Case Cover (coated paper) (see note 1) . .  | 600 752  | 1           | -       | 1      | -       | 1      | -       | 1      | -       |
|  | GASKET, Chain Case Cover (coated paper) (see note 2) .  | 1122 450 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-23-21  | GASKET, Chain Case Cover Oil Seal (fibre). . . . .  | 1088 603 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |

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ENGINE - Cont'd

CODE 9-24-5 to 9-31-10

| PART<br>TYPE<br>CODE   | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CHAIN CASE COVER PLATE</b>  |  |          |             |         |        |         |        |         |        |         |
| 9-24-5   | PLATE, Chain Case Cover . . . . .  | 688 195  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|  | Bolt, hex-hd., S., cd-pltd., 5/16-18 x 3/4 in. . . . .   | 122 007  | 4           | 4       | 3      | 3       | 4      | 4       | 4      | 4       |
|  | Nut, hex., std., s-fin., S., cd-pltd., 5/16 in.-24<br>(if required) . . . . .  | 120 368  | -           | -       | 1      | -       | -      | -       | -      | -       |
|  | Screw, fl-hd., slotted, S., cd-pltd., 5/16-18 x 1 in.<br>(if required on Ind. 6) . . . . .   | 133 837  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Stud, S., pln., 5/16-18 (1/2) x 1 1/4 x 5/16-24 (9/16 in.)<br>(if required) . . . . .  | 103 173  | -           | -       | 1      | -       | -      | -       | -      | -       |
|  | Washer, lock, external teeth, S., cd-pltd., 5/16 in. . . . .   | 138 485  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|  | Washer, lock, med., S., cd-pltd., 5/16 in. . . . .   | 120 214  | 3           | 3       | 3      | 3       | 3      | 3       | 3      | 3       |
|  | Washer, lock, ck., external teeth, S., cd-pltd., 5/16 in. . . . .  | 134 512  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-24-6   | DOWEL, Chain Case Cover Plate (S., chamf., 21/32 in.<br>overall lgh.) . . . . .  | 606 345  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 9-24-7   | GASKET, Chain Case Cover Plate (treated chip board) . . . . .  | 695 441  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 9-24-8   | SCREW, Chain Case Cover Plate, w/WASHER,<br>Assembly (hex-hd., S., 5/16-18 x 1 in., dished<br>washer) (after engine serial No. 7562) (9-23-10) . . . . . | 1123 371 | -           | -       | 1      | -       | -      | -       | -      | -       |
| 9-24-11  | GASKET, Chain Case Cover Plate Screw (annular, cop.<br>and asb., type A, .322 I.D. x 7/16 O.D., 5/64 in.<br>thk.) . . . . .                              | 114 622  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>CONNECTING RODS</b>   |  |          |             |         |        |         |        |         |        |         |
| Note: A Connecting Rod Assembly includes bearing Cap,<br>Bolts, Lockwashers and Bushing, but does not include<br>bearings. |  |          |             |         |        |         |        |         |        |         |
| 9-31-4   | ROD, Connecting, Assembly (Nos. 1-3-5) . . . . .   | 1115 901 | 3           | 3       | -      | -       | -      | -       | -      | -       |
|  | ROD, Connecting, Assembly (Nos. 2-4-6) . . . . .   | 1115 902 | 3           | 3       | -      | -       | -      | -       | -      | -       |
|  | ROD, Connecting, Assembly (Nos. 1-3-5) . . . . .   | 954 376  | -           | -       | 3      | 3       | -      | -       | -      | -       |
|  | ROD, Connecting, Assembly (Nos. 2-4-6) . . . . .   | 954 377  | -           | -       | 3      | 3       | -      | -       | -      | -       |
|  | ROD, Connecting, Assembly . . . . .  | 1112 764 | -           | -       | -      | -       | -      | 6       | 6      | -       |
|  | ROD, Connecting, Assembly . . . . .  | 1112 765 | -           | -       | -      | -       | -      | -       | 6      | 6       |
| 9-31-5   | BOLT, Connecting Rod Bearing Cap (special hd., cold<br>upset and heat treated steel, 3/8-24 x 2 1/8 in.) . . . . .                                       | 868 921  | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|  | BOLT, Connecting Rod Bearing Cap (special hd., cold<br>upset and heat treated steel, 3/8-24 x 2 3/8 in.) . . . . .                                       | 860 343  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
| 9-31-7   | NUT, Connecting Rod Bearing Cap Bolt (hex., S., 3/8<br>in. - 24) (5-13-10) . . . . .   | 860 671  | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| 9-31-8   | WASHER, Connecting Rod Bearing Cap Bolt Lock (S.,<br>.387 I.D. x 17/32 O.D., 5/64 in. thk.) . . . . .  | 668 555  | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| 9-31-10  | BUSHING, Connecting Rod (bronze on steel, .8597 I.D.<br>x .9175 O.D., 7/32 in. punch hole) . . . . .   | 954 157  | 6           | 6       | 6      | 6       | 6      | 6       | 6      | 6       |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-32-2 to 9-34-5

| PART TYPE CODE  | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>CONNECTING ROD BEARING PACKAGE</b>   |  |          |             |         |        |         |        |         |        |         |
| <p>Note: A Connecting Rod Bearing Package contains one upper and one lower bearing half.</p> <p><b>IMPORTANT:</b> Connecting Rod Bearings should ALWAYS be replaced in PAIRS. Never use a new bearing half with an old bearing half.</p>  |  |          |             |         |        |         |        |         |        |         |
| 9-32-2  | PACKAGE, Connecting Rod Bearing (std.) . . . . .                 | 1238 553 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.001 undersize) . .             | 1238 554 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.002 undersize) . .             | 1238 555 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.003 undersize) . .             | 1238 536 | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.010 undersize) . .             | 1238 556 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.012 undersize) . .             | 1238 557 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.020 undersize) . .             | 1056 093 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.030 undersize) . .             | 1056 094 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (.040 undersize) . .             | 1311 070 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PACKAGE, Connecting Rod Bearing (std.) . . . . .                 | 1238 558 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.001 undersize) . .             | 1238 559 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.002 undersize) . .             | 1238 560 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.010 undersize) . .             | 1238 561 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.012 undersize) . .             | 1238 562 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.020 undersize) . .             | 1057 766 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.030 undersize) . .             | 1057 767 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PACKAGE, Connecting Rod Bearing (.040 undersize) . .             | 1311 121 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
| <b>PISTONS</b>  |  |          |             |         |        |         |        |         |        |         |
| <p>Note: When installing oversize pistons, order required oversize and machine cylinder bores to provide a skirt clearance of .002 to .0025. Semi-finished pistons are completely finished except for the skirt. It is necessary to have the skirt ground locally to final skirt dimensions required.</p> |  |          |             |         |        |         |        |         |        |         |
| 9-34-5  | PISTON, w/PIN and Lock RINGS, Assembly (standard) .              | 986 466  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (standard) .              | 1241 622 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (standard) .              | 986 477  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.003 oversize) . . . . . | 986 467  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.003 oversize) . . . . . | 986 478  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.005 oversize) . . . . . | 1241 623 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.010 oversize) . . . . . | 986 468  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.020 oversize) . . . . . | 986 469  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.020 oversize) . . . . . | 1241 624 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.020 oversize) . . . . . | 986 480  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.023 oversize) . . . . . | 986 470  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.030 oversize) . . . . . | 986 471  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|   | PISTON, w/PIN and Lock RINGS, Assembly (.030 oversize) . . . . . | 1241 625 | -           | -       | 6      | 6       | -      | -       | -      | -       |

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ENGINE - Cont'd

CODE 9-34-5 to 9-35-1

| PART<br>TYPE<br>CODE   | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTONS - Cont'd</b>  |  |          |             |         |        |         |        |         |        |         |
| 9-34-5   | PISTON, w/PIN and Lock RINGS, Assembly (.030<br>oversize) . . . . .                              | 986 482  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.040<br>oversize) . . . . .                              | 986 472  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.040<br>oversize) . . . . .                              | 1241 626 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.040<br>oversize) . . . . .                              | 986 483  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.060<br>oversize) . . . . .                              | 986 474  | 6           | 6       | -      | -       | -      | -       | -      | -       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.060<br>oversize) . . . . .                              | 1241 627 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (.060<br>oversize) . . . . .                              | 986 485  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
| 9-34-6   | PISTON, w/PIN and Lock RINGS, Assembly (semi-<br>finished) (standard to .023 oversize) . . . . . | 1241 628 | -           | -       | 6      | 6       | -      | -       | -      | -       |
|  | PISTON, w/PIN and Lock RINGS, Assembly (semi-<br>finished) (.025 to .060 oversize) . . . . .     | 1241 629 | -           | -       | 6      | 6       | -      | -       | -      | -       |
| <b>PISTON RINGS</b>  |  |          |             |         |        |         |        |         |        |         |
| <p><b>IMPORTANT:</b> Always check rings for proper gap at top and bottom end of ring travel and file to fit if necessary. Upper compression rings must be installed with relief on inside diameter of ring facing upwards.</p> <p>Note 1. Up to engine serial number 1486 on Ind. 7, and 1460 on Ind. 8.</p> <p>Note 2. After engine serial number 1486 on Ind. 7, and 1460 on Ind. 8.</p> |  |          |             |         |        |         |        |         |        |         |
| (OIL SAVER PISTON RING SETS)   |  |          |             |         |        |         |        |         |        |         |
| 9-35-1   | SET, MoPar Oil Saver Piston Rings, Complete (std. to<br>.009 oversize) . . . . .                 | 1243 673 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1117 982 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 346 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 344 Ring, Inner Spring Slotted Oil Control<br>Assembly                                  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1311 749 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Saver Piston Ring, Complete (std. to<br>.009 oversize) (see note 1) . . . . .     | 1241 564 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 957 951 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 367 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 368 Ring Inner Spring Slotted Oil Control,<br>Assembly                                  |          |             |         |        |         |        |         |        |         |
|  | 6 - 667 557 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-35-1

| PART TYPE CODE                        | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---------------------------------------|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                       |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>          |   |          |             |         |        |         |        |         |        |         |
| (OIL SAVER PISTON RING SETS) - Cont'd |   |          |             |         |        |         |        |         |        |         |
| 9-35-1                                | SET, MoPar Oil Saver Piston Ring, Complete (std. to .009 oversize) (see note 2) . . . . . | 1241 570 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 717 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 367 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 368 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 557 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.010 to .019 oversize) . . . . .              | 1243 674 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 983 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 350 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 348 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1319 395 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.010 to .019 oversize) (see note 1) . . . . . | 1241 565 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 952 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 370 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 371 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 559 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.010 to .019 oversize) (see note 2) . . . . . | 1241 571 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 718 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 370 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 371 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 559 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.020 to .029 oversize) . . . . .              | 1243 675 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 984 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 354 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 352 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1311 775 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.020 to .029 oversize) (see note 1) . . . . . | 1241 566 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 953 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 373 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 374 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 561 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |

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ENGINE - Cont'd

CODE 9-35-1

| PART<br>TYPE<br>CODE                  | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---------------------------------------|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                       |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>          |   |          |             |         |        |         |        |         |        |         |
| (OIL SAVER PISTON RING SETS) - Cont'd |   |          |             |         |        |         |        |         |        |         |
| 9-35-1                                | SET, MoPar Oil Saver Piston Ring, Complete (.020 to .029 oversize) (see note 2) . . . . . | 1241 572 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 719 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 373 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 374 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 561 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.030 to .039 oversize) . . . . .              | 1243 676 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 985 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 358 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 356 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1319 396 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.030 to .039 oversize) (see note 1) . . . . . | 1241 567 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 954 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 376 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 377 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 563 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.030 to .039 oversize) (see note 2) . . . . . | 1241 573 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 720 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 376 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 377 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 563 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.040 to .049 oversize) . . . . .              | 1243 677 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 986 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 362 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 360 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1319 397 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.040 to .049 oversize) (see note 1) . . . . . | 1241 568 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 955 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 379 Ring, Second Compression, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 380 Ring, Inner Spring Slotted Oil Control, Assembly                             |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 564 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |

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ENGINE - Cont'd

CODE 9-35-1

| PART TYPE CODE                        | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---------------------------------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                       |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| PISTON RINGS - Cont'd                 |  |          |             |         |        |         |        |         |        |         |
| (OIL SAVER PISTON RING SETS) - Cont'd |  |          |             |         |        |         |        |         |        |         |
| 9-35-1                                | SET, MoPar Oil Saver Piston Ring, Complete (.040 to .049 oversize) (see note 2) . . . . .  | 1241 574 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 721 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 379 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 380 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 564 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.050 to .060 oversize) . . . . .               | 1243 678 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 987 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 366 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 364 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1319 398 Ring, Lower Oil Control   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.050 to .060 oversize) (see note 1) . . . . .  | 1241 569 | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 956 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 382 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 383 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 565 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Saver Piston Ring, Complete (.050 to .060 oversize) (see note 2) . . . . .  | 1241 575 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1124 722 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 382 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 383 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 667 565 Ring, Lower Oil Control  |          |             |         |        |         |        |         |        |         |
| (OIL MASTER PISTON RING SETS)         |  |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Master Piston Ring, Complete (std. to .009 oversize) . . . . .              | 1243 679 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1117 982 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 346 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 344 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 345 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|                                       | SET, MoPar Oil Master Piston Ring, Complete (std. to .009 oversize) (see note 1) . . . . . | 986 454  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                                       | Consists of:   |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 957 951 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 367 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 368 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|                                       | 6 - 1238 369 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |

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ENGINE - Cont'd

CODE 9-35-1

| PART<br>TYPE<br>CODE                   | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>           |  |          |             |         |        |         |        |         |        |         |
| (OIL MASTER PISTON RING SETS) - Cont'd |  |          |             |         |        |         |        |         |        |         |
| 9-35-1                                 | SET, MoPar Oil Master Piston Ring, Complete (std. to .009 oversize) (see note 2) . . . . . | 1238 510 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1124 717 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 367 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 368 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 369 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.010 to .019 oversize) . . . . .              | 1243 680 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1117 983 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 350 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 348 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 349 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.010 to .019 oversize) (see note 1) . . . . . | 986 455  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 957 952 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 370 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 371 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 372 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.010 to .019 oversize) (see note 2) . . . . . | 1238 511 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1124 718 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 370 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 371 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 372 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.020 to .029 oversize) . . . . .              | 1243 681 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1117 984 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 354 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 352 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 353 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.020 to .029 oversize) (see note 1) . . . . . | 986 456  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 957 953 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 373 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 374 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 375 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |

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MODEL IND. 5, 6, 7 AND 8 SERIES

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CODE 9-35-1

| PART TYPE CODE                         | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>           |  |          |             |         |        |         |        |         |        |         |
| (OIL MASTER PISTON RING SETS) - Cont'd |  |          |             |         |        |         |        |         |        |         |
| 9-35-1                                 | SET, MoPar Oil Master Piston Ring, Complete (.020 to .029 oversize) (see note 2) . . . . . | 1238 512 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1124 719 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 373 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 374 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 375 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring Complete (.030 to .039 oversize) . . . . .               | 1243 682 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1117 985 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 358 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 356 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 357 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.030 to .039 oversize) (see note 1) . . . . . | 986 457  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 957 954 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 376 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 377 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 378 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.030 to .039 oversize) (see note 2) . . . . . | 1238 513 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1124 720 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 376 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 377 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 378 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.040 to .049 oversize) . . . . .              | 1243 683 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1117 986 Ring, Top Compression   |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 362 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 360 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 361 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |
|  | SET, MoPar Oil Master Piston Ring, Complete (.040 to .049 oversize) (see note 1) . . . . . | 986 458  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | Consists of:   |          |             |         |        |         |        |         |        |         |
|  | 6 - 957 955 Ring, Top Compression  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 379 Ring, Second Compression, Assembly  |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 380 Ring, Inner Spring Slotted Oil Control, Assembly                              |          |             |         |        |         |        |         |        |         |
|  | 6 - 1238 381 Ring, Lower Oil Control, Assembly   |          |             |         |        |         |        |         |        |         |

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ENGINE - Cont'd

CODE 9-35-1 to 9-35-5

| PART<br>TYPE<br>CODE                   | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|--|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>           |  |          |             |         |        |         |        |         |        |         |
| (OIL MASTER PISTON RING SETS) - Cont'd |  |          |             |         |        |         |        |         |        |         |
| 9-35-1                                 | SET, MoPar Oil Master Piston Ring, Complete (.040 to .049 oversize) (see note 2) . . . . .<br>Consists of:<br>6 - 1124 721 Ring, Top Compression<br>6 - 1238 379 Ring, Second Compression, Assembly<br>6 - 1238 380 Ring, Inner Spring Slotted Oil Control, Assembly<br>6 - 1238 381 Ring, Lower Oil Control, Assembly . . . | 1238 514 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|  | SET, MoPar Oil Master Piston Ring, Complete (.050 to .060 oversize) . . . . .<br>Consists of:<br>6 - 1117 987 Ring, Top Compression<br>6 - 1238 366 Ring, Second Compression, Assembly<br>6 - 1238 364 Ring, Inner Spring Slotted Oil Control, Assembly<br>6 - 1238 365 Ring, Lower Oil Control, Assembly                    | 1243 684 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|  | SET, MoPar Oil Master Piston Ring, Complete (.050 to .060 oversize) (see note 1) . . . . .<br>Consists of:<br>6 - 957 956 Ring, Top Compression<br>6 - 1238 382 Ring, Second Compression, Assembly<br>6 - 1238 383 Ring, Inner Spring Slotted Oil Control, Assembly<br>6 - 1238 484 Ring, Lower Oil Control, Assembly        | 986 459  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|  | SET, MoPar Oil Master Piston Ring, Complete (.050 to .060 oversize) (see note 2) . . . . .<br>Consists of:<br>6 - 1124 722 Ring, Top Compression<br>6 - 1238 382 Ring, Second Compression, Assembly<br>6 - 1238 383 Ring, Inner Spring Slotted Oil Control, Assembly<br>6 - 1238 384 Ring, Lower Oil Control, Assembly       | 1238 515 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-35-5                                 | RING, Piston, Upper (std. to .009 oversize) . . . . .  | 1117 982 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (std. to .009 oversize) (see note 1) . . . . .   | 957 951  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (std. to .009 oversize) (see note 2) . . . . .   | 1124 717 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Upper (.010 to .019 oversize) . . . . .  | 1117 983 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (.010 to .019 oversize) (see note 1) . . . . .   | 957 952  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (.010 to .019 oversize) (see note 2) . . . . .   | 1124 718 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Upper (.020 to .029 oversize) . . . . .  | 1117 984 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (.020 to .029 oversize) (see note 1) . . . . .   | 957 953  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (.020 to .029 oversize) (see note 2) . . . . .   | 1124 719 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Upper (.030 to .039 oversize) . . . . .  | 1117 985 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (.030 to .039 oversize) (see note 1) . . . . .   | 957 954  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (.030 to .039 oversize) (see note 2) . . . . .   | 1124 720 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Upper (.040 to .049 oversize) . . . . .  | 1117 986 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (.040 to .049 oversize) (see note 1) . . . . .   | 957 955  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (.040 to .049 oversize) (see note 2) . . . . .   | 1124 721 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Upper (.050 to .060 oversize) . . . . .  | 1117 987 | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|  | RING, Piston, Upper (.050 to .060 oversize) (see note 1) . . . . .   | 957 956  | -           | -       | -      | -       | 6      | -       | 6      | -       |
|  | RING, Piston, Upper (.050 to .060 oversize) (see note 2) . . . . .   | 1124 722 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|  | RING, Piston, Intermediate (std. to .009 oversize) . . . . .   | 867 014  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |

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CODE 9-35-5 to 9-39-1

| PART TYPE CODE  | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>PISTON RINGS - Cont'd</b>  |   |          |             |         |        |         |        |         |        |         |
| 9-35-5  | RING, Piston, Intermediate (std. to .009 oversize) . . . . .  | 957 951  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Intermediate (.010 to .019 oversize) . . . . .  | 867 015  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | RING, Piston, Intermediate (.010 to .019 oversize) . . . . .  | 957 952  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Intermediate (.020 to .029 oversize) . . . . .  | 867 016  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | RING, Piston, Intermediate (.020 to .029 oversize) . . . . .  | 957 953  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Intermediate (.030 to .039 oversize) . . . . .  | 867 017  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | RING, Piston, Intermediate (.030 to .039 oversize) . . . . .  | 957 954  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Intermediate (.040 to .049 oversize) . . . . .  | 867 018  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | RING, Piston, Intermediate (.040 to .049 oversize) . . . . .  | 957 955  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Intermediate (.050 to .060 oversize) . . . . .  | 867 019  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | RING, Piston, Intermediate (.050 to .060 oversize) . . . . .  | 957 956  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | RING, Piston, Lower (std. to .009 oversize) . . . . .   | 1311 749 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (std. to .009 oversize) . . . . .   | 667 557  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
|   | RING, Piston, Lower (.010 to .019 oversize) . . . . .   | 1319 395 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (.010 to .019 oversize) . . . . .   | 667 559  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
|   | RING, Piston, Lower (.020 to .029 oversize) . . . . .   | 1311 775 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (.020 to .029 oversize) . . . . .   | 667 561  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
|   | RING, Piston, Lower (.030 to .039 oversize) . . . . .   | 1319 396 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (.030 to .039 oversize) . . . . .   | 667 563  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
|   | RING, Piston, Lower (.040 to .049 oversize) . . . . .   | 1319 397 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (.040 to .049 oversize) . . . . .   | 667 564  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
|   | RING, Piston, Lower (.050 to .060 oversize) . . . . .   | 1319 398 | 12          | 12      | 12     | 12      | -      | -       | -      | -       |
|   | RING, Piston, Lower (.050 to .060 oversize) . . . . .   | 667 565  | -           | -       | -      | -       | 12     | 12      | 12     | 12      |
| <b>PISTON PINS</b>  |   |          |             |         |        |         |        |         |        |         |
| 9-36-5  | PIN, Piston (standard) . . . . .  | 320 031  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PIN, Piston (standard) . . . . .  | 436 658  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PIN, Piston (.003 oversize) . . . . .   | 208 483  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PIN, Piston (.003 oversize) . . . . .   | 203 741  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|   | PIN, Piston (.008 oversize) . . . . .   | 208 485  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|   | PIN, Piston (.008 oversize) . . . . .   | 302 560  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
| 9-36-7  | RING, Piston Pin Retaining . . . . .  | 200 434  | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| <b>PISTON EXPANDER</b>  |   |          |             |         |        |         |        |         |        |         |
| 9-38-1  | PACKAGE, MoPar Piston Expander . . . . .<br>Consists of:<br>6 - 853 980 Expander, Piston  | 951 330  | -           | -       | 1      | 1       | -      | -       | -      | -       |
| 9-38-2  | EXPANDER, Piston . . . . .  | 853 980  | -           | -       | 6      | 6       | -      | -       | -      | -       |
| <b>VALVES</b>   |   |          |             |         |        |         |        |         |        |         |
| Note: See Note 2 under heading CYLINDER BLOCK ASSEMBLY, for valve identification. |   |          |             |         |        |         |        |         |        |         |
| 9-39-1  | PACKAGE, MoPar Valve Grind Gasket . . . . .<br>Consists of:<br>1 - 1117 542 Gasket, Cylinder Head<br>1 - 863 220 Gasket, Thermostat<br>2 - 871 934 Gasket, Valve Spring Cover<br>4 - 693 959 Gasket, Valve Spring Cover Stud Nut<br>1 - 50 082 Gasket, Water Outlet Elbow<br>1 - 622 772 Gasket, Water Pump By-Pass Elbow | 1064 733 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |

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ENGINE - Cont'd

CODE 9-39-1 to 9-40-1

| PART<br>TYPE<br>CODE      | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---------------------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                           |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>VALVES - Cont'd</b>    |  |          |             |         |        |         |        |         |        |         |
| 9-39-1                    | PACKAGE, MoPar Valve Grind Gasket . . . . .  | 1064 735 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                           | Consists of:   |          |             |         |        |         |        |         |        |         |
|                           | 1 - 1113 745 Gasket, Cylinder Head   |          |             |         |        |         |        |         |        |         |
|                           | 1 - 863 220 Gasket, Thermostat   |          |             |         |        |         |        |         |        |         |
|                           | 2 - 871 935 Gasket, Valve Spring Cover   |          |             |         |        |         |        |         |        |         |
|                           | 4 - 693 959 Gasket, Valve Spring Cover Stud Nut  |          |             |         |        |         |        |         |        |         |
|                           | 1 - 50 082 Gasket, Water Outlet Elbow  |          |             |         |        |         |        |         |        |         |
|                           | 1 - 622 772 Gasket, Water Pump By-Pass Elbow   |          |             |         |        |         |        |         |        |         |
| 9-39-5                    | VALVE, Intake . . . . .  | 868 886  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|                           | VALVE, Intake (used with regular exhaust valves) . . . . .   | 870 048  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|                           | VALVE, Intake (silcrome) (used with sodium cooled exhaust valves) . . . . .  | 1109 912 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
| 9-39-6                    | VALVE, Exhaust . . . . .   | 954 302  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|                           | VALVE, Exhaust (regular) (up to approx. engine serial No. 17460 on Ind. 7A., and 5350 on Ind. 8A) . . . . .  | 667 612  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|                           | VALVE, Exhaust (regular) (after approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .   | 1319 089 | -           | -       | -      | -       | -      | 6       | -      | 6       |
|                           | VALVE, Exhaust (sodium cooled) (up to approx. engine serial No. 17460 on Ind. 7A., and 5350 on Ind. 8A) . . . . .  | 1119 221 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|                           | VALVE, Exhaust (sodium cooled) (after approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .   | 1319 090 | -           | -       | -      | -       | -      | 6       | -      | 6       |
| 9-39-9                    | SEAT, Exhaust Valve (std.) . . . . .   | 868 888  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|                           | SEAT, Exhaust Valve (std.) (up to approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .   | 666 012  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|                           | SEAT, Exhaust Valve (std.) (after approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .   | 1319 087 | -           | -       | -      | -       | -      | 6       | -      | 6       |
|                           | SEAT, Exhaust Valve (.010 oversize) . . . . .  | 868 889  | 6           | 6       | 6      | 6       | -      | -       | -      | -       |
|                           | SEAT, Exhaust Valve (.010 oversize) (up to approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .  | 666 013  | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
|                           | SEAT, Exhaust Valve (.010 oversize) (after approx. engine serial No. 17460 on Ind. 7A, and 5350 on Ind. 8A) . . . . .  | 1319 088 | -           | -       | -      | -       | -      | 6       | -      | 6       |
| 9-39-10                   | GUIDE, Valve Stem ( (6) used for intake valves on engines equipped with sodium cooled valves, (12) used on engines equipped with regular exhaust valves) . . . . . | 1124 959 | 12          | 12      | 12     | 12      | *      | *       | *      | *       |
|                           | GUIDE, Exhaust Valve Stem (for engines equipped with sodium cooled valves) . . . . .   | 1139 373 | -           | -       | -      | -       | 6      | 6       | 6      | 6       |
| 9-39-15                   | SPRING, Valve . . . . .  | 1138 097 | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| 9-39-16                   | RETAINER, Valve Spring . . . . .   | 1313 268 | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| 9-39-17                   | LOCK, Valve Spring Retainer . . . . .  | 395 931  | 24          | 24      | 24     | 24      | 24     | 24      | 24     | 24      |
| <b>VALVE SPRING COVER</b> |  |          |             |         |        |         |        |         |        |         |
| 9-40-1                    | SET, MoPar Valve Spring Cover Gasket . . . . .   | 980 583  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                           | Consists of:   |          |             |         |        |         |        |         |        |         |
|                           | 2 - 871 934 Gasket, Valve Spring Cover   |          |             |         |        |         |        |         |        |         |
|                           | 4 - 693 959 Gasket, Valve Spring Cover Screw   |          |             |         |        |         |        |         |        |         |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE - Cont'd

CODE 9-40-1 to 9-50-1

| PART TYPE CODE                     | PART NAME AND DESCRIPTION   | PART NO.                                   | MODEL CODES |         |        |         |        |         |        |         |
|------------------------------------|---|--|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                    |   |  | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>VALVE SPRING COVER - Cont'd</b> |   |  |             |         |        |         |        |         |        |         |
| 9-40-1                             | SET, MoPar Valve Spring Cover Gasket. . . . .<br>Consists of:<br>2 - 871 935 Gasket, Valve Spring Cover<br>4 - 693 959 Gasket, Valve Spring Cover Screw   | 980 584                                    | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| 9-40-3                             | COVER, Valve Spring . . . . .<br>COVER, Valve Spring . . . . .  | 600 881<br>665 689                         | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
| 9-40-4                             | GASKET, Valve Spring Cover (rubber). . . . .<br>GASKET, Valve Spring Cover (rubber) . . . . .   | 871 934<br>871 935                         | 2           | 2       | 2      | 2       | -      | -       | -      | -       |
| 9-40-12                            | SCREW, Valve Spring Cover (special hd., cold drawn<br>S., 5/16-18 x 2 7/8 in.) . . . . .<br>SCREW, Valve Spring Cover (special hd., cold drawn<br>S., 5/16-18 x 3 3/32 in.) . . . . .   | 693 958<br>693 960                         | 4           | 4       | 4      | 4       | -      | -       | -      | -       |
| 9-40-13                            | GASKET, Valve Spring Cover Screw (neoprene - asb.,<br>1/16 in. thk.) . . . . .  | 693 959                                    | 4           | 4       | 4      | 4       | 4      | 4       | 4      | 4       |
| <b>VALVE TAPPET</b>                |   |  |             |         |        |         |        |         |        |         |
| 9-41-4                             | TAPPET, Valve, w/Adjusting SCREW, Assembly (std.) .<br>TAPPET, Valve, w/Adjusting SCREW, Assembly<br>(.001 oversize) . . . . .<br>TAPPET, Valve, w/Adjusting SCREW, Assembly<br>(.008 oversize) . . . . .<br>TAPPET, Valve, w/Adjusting SCREW, Assembly<br>(.030 oversize) . . . . .  | 687 667<br>866 892<br>1123 383<br>1123 384 | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| 9-41-5                             | SCREW, Valve Tappet Adjusting (special hd., S., 3/8-<br>24 x 1 3/16 in.) . . . . .  | 681 544                                    | 12          | 12      | 12     | 12      | 12     | 12      | 12     | 12      |
| <b>FLYWHEEL</b>                    |   |  |             |         |        |         |        |         |        |         |
| 9-45-6                             | BOLT, Flywheel (special hd., S., 7/16-20 x 1 19/32<br>in. lgh.) . . . . .   | 871 685                                    | 4           | 4       | -      | -       | -      | -       | -      | -       |
| 9-45-7                             | NUT, Flywheel Bolt (S., 7/16 in.-20) . . . . .<br>Attaching Standard Part<br>Washer, lock, med., S., cd-pltd., 7/16 in. . . . .   | 675 594<br>120 383                         | 4           | 4       | -      | -       | -      | -       | -      | -       |
| <b>MANIFOLD GASKETS</b>            |   |  |             |         |        |         |        |         |        |         |
| 9-50-1                             | SET, MoPar Manifold Gasket. . . . .<br>Consists of:<br>1 - 601 275 Gasket, Intake and Exhaust Manifold,<br>Center<br>4 - 318 042 Gasket, Intake and Exhaust Manifold,<br>End<br><br>SET, MoPar Manifold Gasket . . . . .<br>Consists of:<br>1 - 666 353 Gasket, Intake and Exhaust Manifold,<br>Center<br>4 - 666 354 Gasket, Intake and Exhaust Manifold,<br>End | 780 460<br>780 462                         | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                    |   |  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |

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ENGINE - Cont'd

CODE 9-50-2

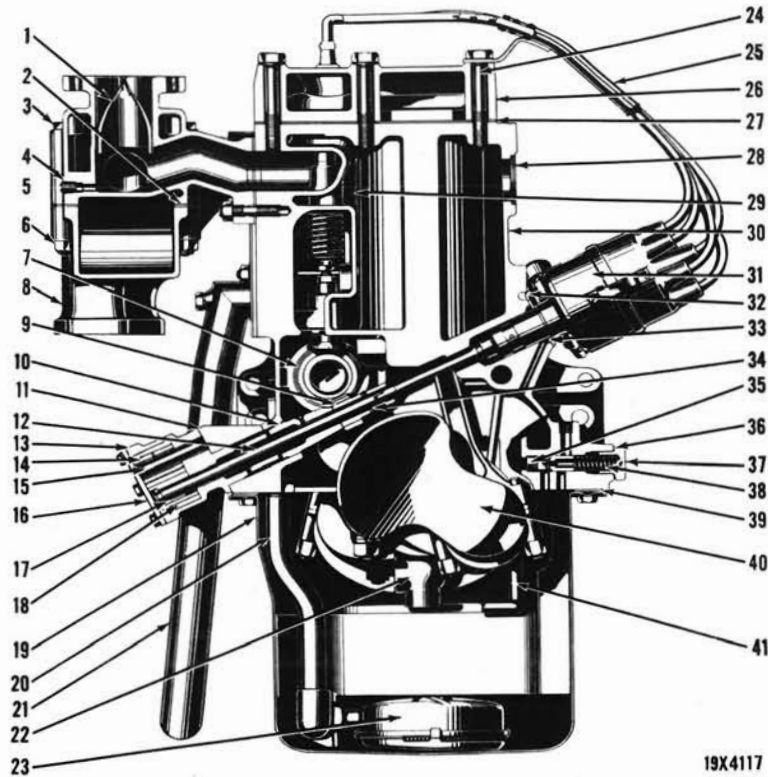
| PART<br>TYPE<br>CODE             | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------------------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>MANIFOLD GASKETS - Cont'd</b> |  |          |             |         |        |         |        |         |        |         |
| 9-50-2                           | GASKET, Intake and Exhaust Manifold, Center<br>(graphited asb., steel reinforced) . . . . .          | 601 275  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                  | GASKET, Intake and Exhaust Manifold, Center<br>(graphited asb., steel reinforced) . . . . .          | 666 353  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                  | GASKET, Intake and Exhaust Manifold, End<br>(graphited asb., steel reinforced) . . . . .             | 318 042  | 4           | 4       | 4      | 4       | -      | -       | -      | -       |
|                                  | GASKET, Intake and Exhaust Manifold, End<br>(graphited asb., steel reinforced) . . . . .             | 666 354  | -           | -       | -      | -       | 4      | 4       | 4      | 4       |
|                                  | GASKET, Intake and Exhaust Manifold (one piece type)<br>(graphited asb., steel reinforced) . . . . . | 854 395  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                  | GASKET, Intake and Exhaust Manifold (one piece type)<br>(graphited asb., steel reinforced) . . . . . | 854 396  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |

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## GROUP 10-ENGINE OILING



| Ref. No. | Name                      | Part Type Code | Ref. No. | Name                       | Part Type Code |
|----------|---------------------------|----------------|----------|----------------------------|----------------|
| 1        | Centralizer .....         | *9-48-93       | 22       | Cap .....                  | 9-10-7         |
| 2        | Gasket .....              | *9-50-3        | 23       | Strainer assembly .....    | 10-23-7        |
| 3        | Bolt .....                | *9-48-33       | 24       | Stud .....                 | 9-03-10        |
| 4        | Plug .....                | *9-48-5        | 25       | Tube assembly .....        | *8-36-4        |
| 5        | Manifold assembly .....   | *9-48-5        | 26       | Head .....                 | 9-03-4         |
| 6        | Nut .....                 | *9-48-33       | 27       | Gasket .....               | 9-03-5         |
| 7        | Camshaft .....            | 9-15-1         | 28       | Plug .....                 | 9-02-5         |
| 8        | Manifold assembly .....   | *9-48-5        | 29       | Tube .....                 | 9-02-10        |
| 9        | Gear .....                | 10-10-1        | 30       | Block assembly .....       | 9-02-5         |
| 10       | Body .....                | 10-07-10       | 31       | Distributor assembly ..... | *8-27-1        |
| 11       | Gasket .....              | 10-07-11       | 32       | Plate assembly .....       | *8-27-20       |
| 12       | Shaft .....               | 10-09-2        | 33       | Retainer .....             | *8-27-9        |
| 13       | Gasket .....              | 10-08-3        | 34       | Pin .....                  | 10-10-1        |
| 14       | Gear (not used) .....     |                | 35       | Plunger .....              | 10-22-11       |
| 15       | Shaft (not used) .....    |                | 36       | Gasket .....               | 10-22-41       |
| 16       | Cover .....               | 10-08-2        | 37       | Cap .....                  | 10-22-40       |
| 17       | Retainer (not used) ..... |                | 38       | Spring .....               | 10-22-15       |
| 18       | Gear (not used) .....     |                | 39       | Gasket .....               | 10-24-5        |
| 19       | Pan .....                 | 10-24-4        | 40       | Crankshaft assembly .....  | 9-07-5         |
| 20       | Pipe .....                | 10-18-4        | 41       | Pipe assembly .....        | 10-16-4        |
| 21       | Pipe .....                | *10-02-15      |          |                            |                |

\* See Parts Book Supplement

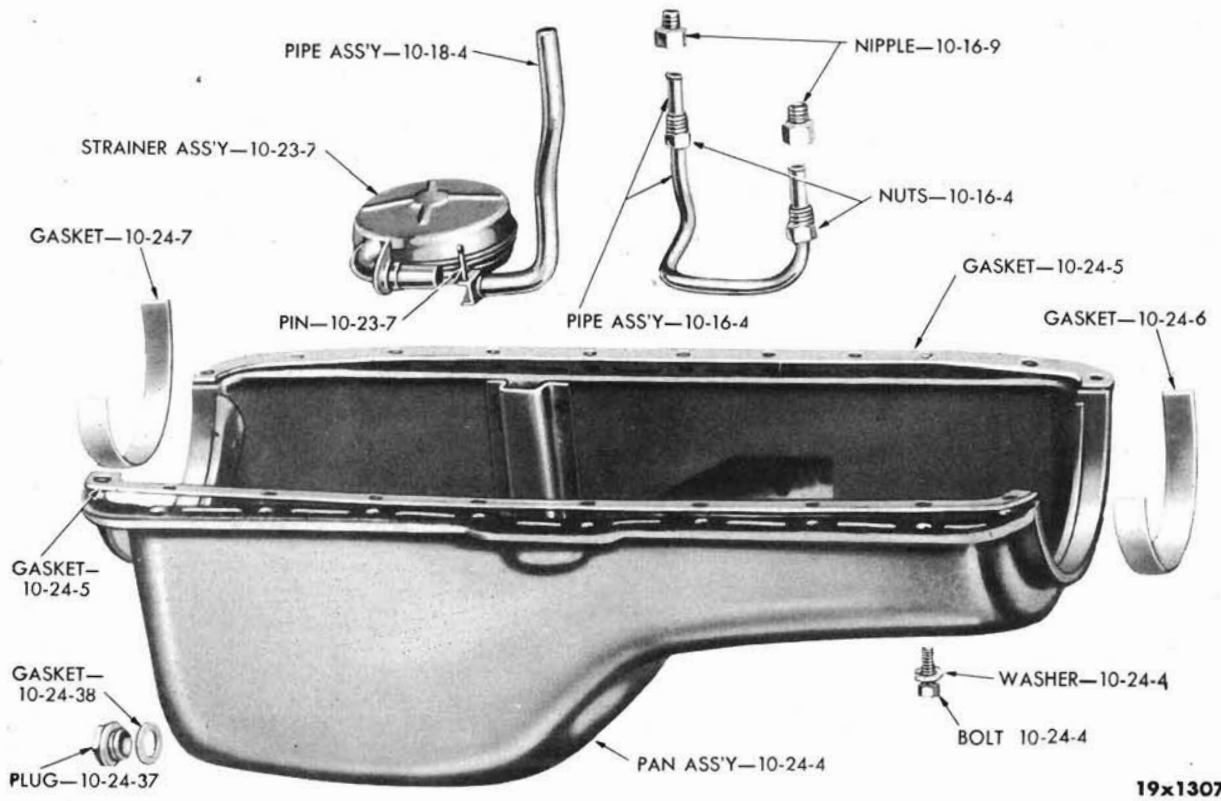


Plate 10-2

OIL PAN AND GASKETS

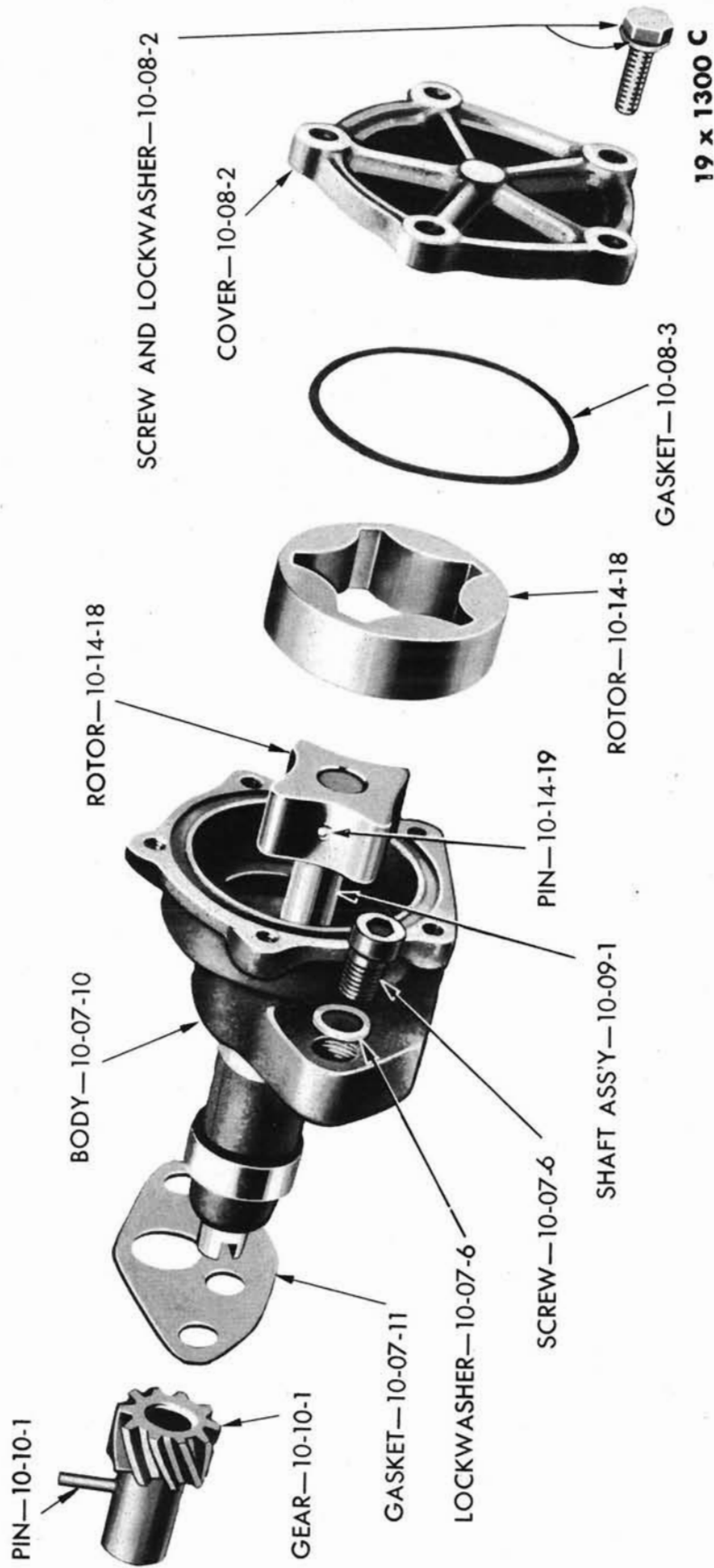
19x1307 C



Plate 10-3

MOPAR OIL PAN FRONT END OIL SEAL PLATE PACKAGE (10-24-2)

19x3118 B



OIL PUMP (EXPLODED VIEW) (10-07-6)

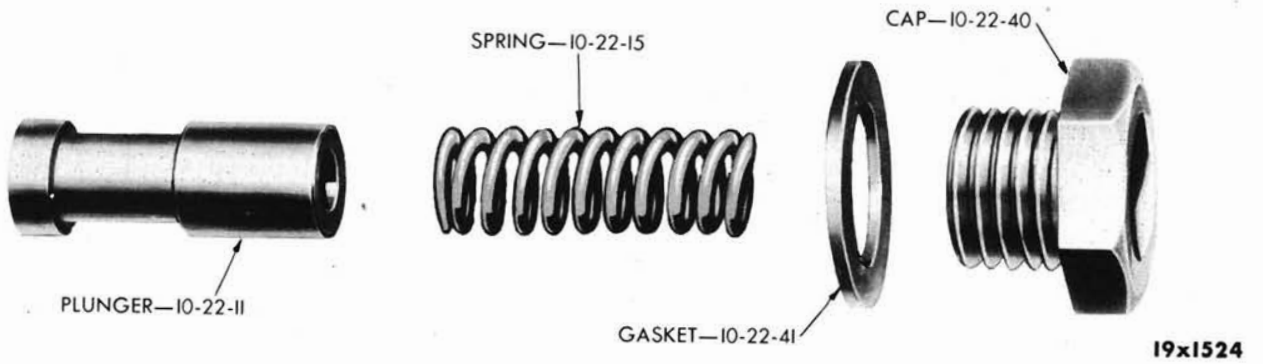


Plate 10-5

OIL PRESSURE RELIEF VALVE (EXPLODED VIEW)

CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE OILING - Cont'd

CODE 10-03-4 to 10-03-7

| PART TYPE CODE             | PART NAME AND DESCRIPTION   | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------------------|---|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                            |   |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>OIL LEVEL INDICATOR</b> |   |          |             |         |        |         |        |         |        |         |
| 10-03-4                    | INDICATOR, Oil Level, Assembly (up to engine serial No. 25142 on Ind. 5, and 10600 on Ind. 6) . . . . .   | 662 598  | 1           | -       | 1      | -       | -      | -       | -      | -       |
|                            | INDICATOR, Oil Level, Assembly (after engine serial No. 25142 on Ind. 5 except on 5-7 and 5-200; up to 50285 on Ind. 5A except on 5A-7, 5A-200 and 5A-210; up to 42958 on Ind. 5A-210; after 10600 on Ind. 6, and up to 11343 on Ind. 6A) . . . . . | 1142 136 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                            | INDICATOR, Oil Level, Assembly (after engine serial No. 50285 on Ind. 5A except on 5A-7, 5A-200 and 5A-210; after 42958 on Ind. 5A-210; after 11343 on Ind. 6A) . . . . .   | 1142 451 | -           | 1       | -      | 1       | -      | -       | -      | -       |
|                            | INDICATOR, Oil Level, Assembly (up to engine serial No. 4640 on Ind. 7, and 1072 on Ind. 8) . . . . .   | 673 375  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                            | INDICATOR, Oil Level, Assembly (after engine serial No. 4640 on Ind. 7, and 1072 on Ind. 8; up to 50000 on Ind. 7A and Ind. 8A) . . . . .   | 1075 092 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                            | INDICATOR, Oil Level, Assembly (after engine serial No. 50000) . . . . .  | 1311 827 | -           | -       | -      | -       | -      | 1       | -      | 1       |
| 10-03-7                    | TUBE, Oil Level Indicator (after engine serial No. 25142 on Ind. 5 except on 5-7 and 5-200; up to 50285 on Ind. 5A except on 5A-7, 5A-200 and 5A-210; up to 42958 on Ind. 5A-210; after 10600 on Ind. 6, and up to 11343 on Ind. 6A) . . . . .      | 1141 866 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                            | TUBE, Oil Level Indicator (after engine serial No. 50285 on Ind. 5A except on 5A-7, 5A-200 and 5A-210; after 42958 on Ind. 5A-210; after 11343 on Ind. 6A) . . . . .  | 1142 452 | -           | 1       | -      | 1       | -      | -       | -      | -       |
|                            | TUBE, Oil Level Indicator (up to engine serial No. 4640 on Ind. 7, and 1072 on Ind. 8) . . . . .  | 673 372  | -           | -       | -      | -       | 1      | -       | 1      | -       |
|                            | TUBE, Oil Level Indicator (from engine serial No. 4640 to 12495 on Ind. 7, and from 1072 to 1526 on Ind. 8; after 50000 on Ind. 7A and Ind. 8A) . . . . .   | 1088 010 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                            | TUBE, Oil Level Indicator (after engine serial No. 12495 on Ind. 7, and after 1526 on Ind. 8; up to 50000 on Ind. 7A and Ind. 8A) . . . . .   | 1191 355 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |

OIL PUMP

Note: Parts indicated by a single dagger (†) were used up to, and parts indicated by a double dagger (††) were used after engine serial Nos. listed in the following chart:

| MODEL CODE  | SERIAL NO. (Oil Pump Assy. and All Component Parts) | SERIAL NO. (Oil Pump Assy. and All Components Except Rotors) | SERIAL NO. (Rotor Only) | MODEL CODE  | SERIAL NO. (Oil Pump Assy. and All Component Parts) | SERIAL NO. (Oil Pump Assy. and All Components Except Rotors) | SERIAL NO. (Rotor Only) |
|-------------|---|--|-------------------------|-------------|---|--|-------------------------|
| Ind. 5A     | 51278   | -----  | -----                   | Ind. 7A-234 | 18424   | -----  | -----                   |
| Ind. 6A     | 50456   | -----  | -----                   | Ind. 7A-245 | 50320   | -----  | -----                   |
| Ind. 7A-2   | -----   | 50619  | 50587                   | Ind. 7A-247 | 50419   | -----  | -----                   |
| Ind. 7A-13  | 18377   | -----  | -----                   | Ind. 7A-260 | -----   | 50467  | 50278                   |
| Ind. 7A-42  | -----   | 50648  | 50595                   | Ind. 7A-261 | 50312   | -----  | -----                   |
| Ind. 7A-76  | 18814   | -----  | -----                   | Ind. 7A-262 | -----   | 50331  | 50330                   |
| Ind. 7A-205 | 17850   | -----  | -----                   | Ind. 7A-263 | 50543   | -----  | -----                   |
| Ind. 7A-207 | 50506   | -----  | -----                   | Ind. 7A-264 | 50400   | -----  | -----                   |
| Ind. 7A-219 | 18490   | -----  | -----                   | Ind. 7A-266 | -----   | 50212  | 50211                   |

Continued on next page

\* Indicates - use as required.  
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ENGINE OILING - Cont'd

CODE 10-07-3 to 10-10-3

OIL PUMP - Cont'd

Chart - Cont'd

| MODEL CODE  | SERIAL NO.<br>(Oil Pump Assy. and All Component Parts) | SERIAL NO.<br>(Oil Pump Assy. and All Components Except Rotors) | SERIAL NO.<br>(Rotor Only) | MODEL CODE  | SERIAL NO.<br>(Oil Pump Assy. and All Component Parts) | SERIAL NO.<br>(Oil Pump Assy. and All Components except Rotors) | SERIAL NO.<br>(Rotor Only) |
|-------------|--|---|----------------------------|-------------|--|---|----------------------------|
| Ind. 8A-20  | 50258  | -----   | -----                      | Ind. 8A-300 | 6175   | -----   | -----                      |
| Ind. 8A-104 | 50180  | -----   | -----                      | Ind. 8A-301 | 50495  | -----   | -----                      |
| Ind. 8A-114 | 50659  | -----   | -----                      | Ind. 8A-325 | 50410  | -----   | -----                      |
| Ind. 8A-207 | 18395  | -----   | -----                      | Ind. 8A-326 | 50508  | -----   | -----                      |
| Ind. 8A-208 | 50624  | -----   | -----                      | Ind. 8A-327 | -----  | 50610   | 50409                      |
| Ind. 8A-213 | 50000  | -----   | -----                      | Ind. 8A-331 | 50668  | -----   | -----                      |
| Ind. 8A-222 | -----  | 50681   | 50361                      | Ind. 8A-332 | 50650  | -----   | -----                      |
| Ind. 8A-227 | 50610  | -----   | -----                      | Ind. 8A-333 | 50683  | -----   | -----                      |
| Ind. 8A-248 | -----  | 5568  | 5567                       |             |  |   |                            |

| PART TYPE CODE | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| 10-07-3        | PACKAGE, Oil Pump Drive Shaft and Rotor (see note)(††).<br>Consists of:<br>1 - --- --- Rotor, Oil Pump, Outer<br>1 - --- --- Shaft, Oil Pump Drive, Assembly | 1316 143 | -           | 1       | -      | 1       | -      | 1       | -      | 1       |
| 10-07-6        | PUMP, Oil, Assembly (see note) . . . . . (†)   | 1124 735 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | PUMP, Oil, Assembly (see note) . . . . . (††)  | 1314 609 | -           | 1       | -      | 1       | -      | 1       | -      | 1       |
|                | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|                | Bolt, hex-hd., slotted, S., pln., 3/8-16 x 1 1/4 in. . . . .   | 175 221  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|                | Washer, lock, med., S., cd-pltd., 3/8 in. . . . .  | 120 382  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 10-07-10       | BODY, Oil Pump (see note) . . . . . (†)  | 1125 167 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | BODY, Oil Pump (see note) . . . . . (††)   | 1314 611 | -           | 1       | -      | 1       | -      | 1       | -      | 1       |
| 10-07-11       | GASKET, Oil Pump Body to Cylinder Block (treated karropak paper) . . . . .   | 695 442  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | OIL PUMP COVER   |          |             |         |        |         |        |         |        |         |
| 10-08-2        | COVER, Oil Pump . . . . .  | 1124 724 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|                | Bolt, hex-hd., S., cd-pltd., 1/4-20 x 3/4 in. . . . .  | 121 887  | 5           | 5       | 5      | 5       | 5      | 5       | 5      | 5       |
|                | Washer, lock, external teeth, S., cd-pltd., 1/4 in. . . . .  | 121 753  | 5           | 5       | 5      | 5       | 5      | 5       | 5      | 5       |
| 10-08-3        | GASKET, Oil Pump Cover (synthetic rubber) . . . . .  | 1124 984 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | OIL PUMP DRIVE SHAFT AND GEAR  |          |             |         |        |         |        |         |        |         |
| 10-09-1        | SHAFT, Oil Pump Drive, w/Inner ROTOR and PIN, Assembly (see note) . . . . . (†)  | 863 727  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-09-2        | SHAFT, Oil Pump Drive . . . . .  | 863 728  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | OIL PUMP DRIVE GEAR  |          |             |         |        |         |        |         |        |         |
| 10-10-1        | GEAR, Oil Pump and Distributor Drive (10 teeth, .182 left hand spiral) . . . . .   | 601 268  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                | Attaching Standard Part  |          |             |         |        |         |        |         |        |         |
|                | Pin, stght., sq-hd., S., pln., 5/32 x 1 in. . . . .  | 112 032  | 1           | -       | 1      | -       | 1      | -       | 1      | -       |
| 10-10-3        | PIN, Oil Pump and Distributor Drive Gear . . . . .   | 1316 559 | -           | 1       | -      | 1       | -      | 1       | -      | 1       |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE OILING - Cont'd

CODE 10-14-18 to 10-22-15

| PART TYPE CODE                   | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------------------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                                  |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>OIL PUMP ROTOR</b>            |  |          |             |         |        |         |        |         |        |         |
| 10-14-18                         | ROTOR, Oil Pump, Inner (see note) . . . . . (†)  | 694 890  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                                  | ROTOR, Oil Pump, Outer (see note) . . . . . (†)  | 694 891  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-14-19                         | PIN, Oil Pump Inner Rotor . . . . .  | 867 386  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>OIL PUMP OUTLET PIPE</b>      |  |          |             |         |        |         |        |         |        |         |
| 10-16-4                          | PIPE, Oil Pump Outlet, w/NUTS, Assembly . . . . .<br>Attaching Standard Part   | 665 806  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|                                  | Nut, inverted flared tube, S., cd-pltd., 7/16 tube diam.,<br>11/16 in. - 18 thd. . . . .   | 137 400  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 10-16-9                          | NIPPLE, Oil Pump Outlet Pipe ((2) used up to and (1)<br>used after engine serial No. 12495 on Ind. 7 and<br>1526 on Ind. 8) . . . . .                          | 671 152  | 2           | -       | 2      | -       | *      | -       | *      | -       |
|                                  | NIPPLE, Oil Pump Outlet Pipe (after engine serial<br>No. 12495 on Ind. 7 and 1526 on Ind. 8) . . . . .   | 1119 208 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
| <b>OIL PUMP SUCTION PIPE</b>     |  |          |             |         |        |         |        |         |        |         |
| 10-18-4                          | PIPE, Oil Pump Suction, Assembly . . . . .   | 862 832  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>OIL PRESSURE RELIEF VALVE</b> |  |          |             |         |        |         |        |         |        |         |
|                                  | Note 1. Used up to engine serial No. 4166 on Ind. 5, 5693 on Ind. 6-3, 5768 on Ind. 6-19, 5877 on all other Ind. 6 types, 12495 on Ind. 7, and 1526 on Ind. 8. |          |             |         |        |         |        |         |        |         |
|                                  | Note 2. Used after engine serial No. 4166 on Ind. 5, 5693 on Ind. 6-3, 5768 on Ind. 6-19, 5877 on all other Ind. 6 types, 12495 on Ind. 7, and 1526 on Ind. 8. |          |             |         |        |         |        |         |        |         |
|                                  | Note 3. Used up to engine serial No. 50000 on Ind. 7A and Ind. 8A.   |          |             |         |        |         |        |         |        |         |
|                                  | Note 4. Used after engine serial No. 50000 on Ind. 7A and Ind. 8A.   |          |             |         |        |         |        |         |        |         |
| 10-22-11                         | PLUNGER, Oil Pressure Relief Valve (see notes 1<br>and 3) . . . . .  | 618 759  | 1           | -       | 1      | -       | 1      | 1       | 1      | 1       |
|                                  | PLUNGER, Oil Pressure Relief Valve (see note 2) . . . . .  | 1119 997 | 1           | -       | 1      | -       | -      | -       | -      | -       |
|                                  | PLUNGER, Oil Pressure Relief Valve . . . . .   | 1142 998 | -           | 1       | -      | 1       | -      | -       | -      | -       |
|                                  | PLUNGER, Oil Pressure Relief Valve (see note 4) . . . . .  | 1119 204 | -           | -       | -      | -       | -      | 1       | -      | 1       |
| 10-22-15                         | SPRING, Oil Pressure Relief Valve (standard) (plain)<br>(see note 1) . . . . .   | 617 672  | 1           | -       | 1      | -       | -      | -       | -      | -       |
|                                  | SPRING, Oil Pressure Relief Valve (standard) (plain)<br>(see note 2) . . . . .   | 1119 994 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                                  | SPRING, Oil Pressure Relief Valve (standard) (painted<br>white) (see notes 2 and 3) . . . . .  | 1121 250 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                                  | SPRING, Oil Pressure Relief Valve (standard) (painted<br>blue) (see note 4) . . . . .  | 1119 205 | -           | -       | -      | -       | -      | 1       | -      | 1       |
|                                  | SPRING, Oil Pressure Relief Valve (light) (painted red)<br>(see note 1) . . . . .  | 617 673  | 1           | -       | 1      | -       | 1      | -       | 1      | -       |
|                                  | SPRING, Oil Pressure Relief Valve (light) (painted red)<br>(see note 2) . . . . .  | 1119 995 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |

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ENGINE OILING - Cont'd

CODE 10-22-15 to 10-24-4

| PART<br>TYPE<br>CODE                      | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|---|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|   |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| <b>OIL PRESSURE RELIEF VALVE - Cont'd</b> |  |          |             |         |        |         |        |         |        |         |
| 10-22-15                                  | SPRING, Oil Pressure Relief Valve (light) (painted black) (see notes 2 and 3) . . . . .  | 1121 251 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | SPRING, Oil Pressure Relief Valve (light) (painted red) (see note 4) . . . . .   | 1119 210 | -           | -       | -      | -       | -      | 1       | -      | 1       |
|   | SPRING, Oil Pressure Relief Valve (heavy) (painted green) (see note 1) . . . . .   | 619 057  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | SPRING, Oil Pressure Relief Valve (heavy) (painted green) (see note 2) . . . . .   | 1119 996 | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | SPRING, Oil Pressure Relief Valve (heavy) (painted yellow) (see notes 2 and 3). . . . .  | 1121 252 | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | SPRING, Oil Pressure Relief Valve (heavy) (painted green) (see note 4) . . . . .   | 1119 209 | -           | -       | -      | -       | -      | 1       | -      | 1       |
| 10-22-40                                  | CAP, Oil Pressure Relief Valve. . . . .  | 618 621  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-22-41                                  | GASKET, Oil Pressure Relief Valve Cap (fibre) . . . . .  | 618 622  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>OIL STRAINER</b>                       |  |          |             |         |        |         |        |         |        |         |
| 10-23-7                                   | STRAINER, Oil, Assembly . . . . .  | 862 831  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Pin, cotter, split, S., pln., 1/8 x 1 5/8 in. . . . .  | 119 209  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| <b>OIL PAN</b>                            |  |          |             |         |        |         |        |         |        |         |
| 10-24-1                                   | SET, MoPar Oil Pan Gasket . . . . .  | 933 438  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | Consists of:<br>2 - 866 680 Gasket, Oil Pan, Front and Rear<br>1 - 600 759 Gasket, Oil Pan, Left<br>1 - 600 758 Gasket, Oil Pan, Right<br>1 - 105 456 Gasket, Oil Pan Drain Plug |          |             |         |        |         |        |         |        |         |
|   | SET, MoPar Oil Pan Gasket . . . . .  | 933 439  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | Consists of:<br>2 - 866 680 Gasket, Oil Pan, Front and Rear<br>1 - 665 803 Gasket, Oil Pan, Left<br>1 - 665 802 Gasket, Oil Pan, Right<br>1 - 105 456 Gasket, Oil Pan Drain Plug |          |             |         |        |         |        |         |        |         |
| 10-24-2                                   | PACKAGE, MoPar Oil Pan Front End Oil Seal Plate . .  | 1115 100 | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Consists of:<br>1 - ---- --- Plate, Oil Pan Front End Oil Seal<br>2 - 1066 873 Seal, Oil Pan Front End Oil Seal Plate  |          |             |         |        |         |        |         |        |         |
|   | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|   | Screw, fil-hd., slotted S., cd-pltd., 1/4-20 x 7/8 in..  | 132 268  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|   | Screw, fil-hd., slotted, S., cd-pltd., 5/16-18 x 3/4 in.   | 132 325  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
|   | Washer, lock, external teeth, S., cd-pltd., 1/4 in. . . .  | 121 753  | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
|   | Washer, lock, external teeth, S., cd-pltd., 5/16 in. . .   | 138 485  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-24-4                                   | PAN, Oil, Assembly (up to engine serial No. 40968 on Ind. 5A, and 11272 on Ind. 6A) . . . . .  | 857 630  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|   | PAN, Oil, Assembly (after engine serial No. 40968 on Ind. 5A, and 11272 on Ind. 6A) . . . . .  | 1313 037 | -           | 1       | -      | 1       | -      | -       | -      | -       |
|   | PAN, Oil, Assembly (up to engine serial No. 18374 on Ind. 7A, and 6175 on Ind. 8A) . . . . .   | 692 884  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|   | PAN, Oil, Assembly (after engine serial No. 18374 on Ind. 7A, and 6175 on Ind. 8A) . . . . .   | 1138 883 | -           | -       | -      | -       | -      | 1       | -      | 1       |
|   | Attaching Standard Parts   |          |             |         |        |         |        |         |        |         |
|   | Bolt, hex-hd., S., cd-pltd., 5/16-18 x 3/4 in. . . . .   | 122 007  | 20          | 20      | 20     | 20      | 20     | 20      | 20     | 20      |
|   | Washer, lock, external teeth, S., cd-pltd., 5/16 in. . .   | 138 485  | 20          | 20      | 20     | 20      | 20     | 20      | 20     | 20      |

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CHRYSLER INDUSTRIAL ENGINE  
MODEL IND. 5, 6, 7 AND 8 SERIES

ENGINE OILING - Cont'd

CODE 10-24-5 to 10-24-38

| PART<br>TYPE<br>CODE | PART NAME AND DESCRIPTION  | PART NO. | MODEL CODES |         |        |         |        |         |        |         |
|----------------------|--|----------|-------------|---------|--------|---------|--------|---------|--------|---------|
|                      |  |          | IND. 5      | IND. 5A | IND. 6 | IND. 6A | IND. 7 | IND. 7A | IND. 8 | IND. 8A |
| OIL PAN - Cont'd     |  |          |             |         |        |         |        |         |        |         |
| 10-24-5              | GASKET, Oil Pan, Right (cork) . . . . .  | 600 758  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                      | GASKET, Oil Pan, Left (cork) . . . . .   | 600 759  | 1           | 1       | 1      | 1       | -      | -       | -      | -       |
|                      | GASKET, Oil Pan, Right (cork) . . . . .  | 665 802  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                      | GASKET, Oil Pan, Left (cork) (up to engine serial<br>No. 18374 on Ind. 7A, and 6175 on Ind. 8A) . . . . .                    | 665 803  | -           | -       | -      | -       | 1      | 1       | 1      | 1       |
|                      | GASKET, Oil Pan, Left (cork) (after engine serial<br>No. 18374 on Ind. 7A, and 6175 on Ind. 8A) . . . . .                    | 1138 886 | -           | -       | -      | -       | -      | 1       | -      | 1       |
| 10-24-6              | GASKET, Oil Pan, Front (cork) . . . . .  | 866 680  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-24-7              | GASKET, Oil Pan, Rear (cork) (10-24-6) . . . . .   | 866 680  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-24-17             | SEAL, Oil Pan Front End Oil Seal Plate . . . . .   | 1068 873 | 2           | 2       | 2      | 2       | 2      | 2       | 2      | 2       |
| 10-24-37             | PLUG, Oil Pan Drain (hex-hd., 7/8-18 x 1/8 in.) . . .  | 50 722   | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |
| 10-24-38             | GASKET, Oil Pan Drain Plug (annular, cop. and asb.,<br>type A, .890 I.D. x 1 1/8 O.D., 3/32 in. thk.)<br>(10-03-9) . . . . . | 105 456  | 1           | 1       | 1      | 1       | 1      | 1       | 1      | 1       |

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## GROUP 18-STANDARD PARTS

Standard Parts, such as Bolts, Nuts, Screws, Rivets, Plainwashers, Lockwashers, etc., are listed in this Parts List as Attaching Standard Parts immediately under the part which they attach. For further information see Standard Parts List D-11171 dated May 1946.

